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ABSTRACT

The Graduate Record Examinations (GRE) bibliography provides an exhaustive list of references to studies adding to the understanding of the development, nature, and use of the test, and is divided into two sections: (1) the first section lists 125 annotated citations that contain research studies on the GRE; (2) the second section lists reviews and commentaries on the GRE. The bibliography covers the period from January 1968 to approximately July, 1978, and was compiled from computer searches of 10 data bases: ABI Inform, AIM/ARM, Dissertation Abstracts International, ERIC, Exceptional Child Abstracts, the National Technical Information Service, Psychological Abstracts, the Smithsonian Scientific Information Exchange, Social Science Citation Index, and Sociological Abstracts. Only documents or titles that are readily available are included, and price and ordering information is appended to aid potential GRE users, researchers, and measurement specialists. (Author/RL)

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GRE

GRADUATE RECORD EXAMINATIONS

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ANNOTATED BIBLIOGRAPHY OF THE GRADUATE RECORD EXAMINATIONS

Richard O. Fortna

March 1980

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ERIC

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Introduction

The ERIC Clearinghouse on Tests, Measurement, and Evaluation is producing a series of extensive bibliographies on tests that are widely used in educational settings. The purpose of the bibliographies is to provide references to studies that add to the understanding of the development, nature, and use of the tests.

This Graduate Record Examinations (GRE) Bibliography was compiled from computer searches of 10 data bases: ABI Inform, AIM/ARM, Dissertation Abstracts International, ERIC, Exceptional Child Abstracts, the National Technical Information Service, Psychological Abstracts, the Smithsonian Scientific Information Exchange, Social Science Citation Index, and Sociological Abstracts. Except for a few "landmark" documents or articles, the bibliography covers the period from January 1968 to January 1979. Since inclusion in data bases generally lags behind publication, few articles or reports published after July 1978 are included. The Dissertation Abstracts Information (DAI) computerized data base can be searched only by author and title. Therefore, a manual search of DAI from 1968 to the present was undertaken. Individuals scanned all citations in those volumes and identified about 30 dissertations that were appropriate for the bibliography. The computer search had not identified these particular dissertations because neither the abbreviation GRE, nor the term Graduate Record Examinations was in the titles.

Only documents or titles that are readily available are included in the bibliography. ERIC documents (those with an ED number appearing at the end of the bibliographic citation) may be purchased from the ERIC Document Reproduction Service. Price and ordering information is appended. If users do not wish to purchase a document, ERIC microfiche collections, available at about 600 locations throughout the country, may be used. Most of these collections are open to the public. If you are unable to locate a collection in your area, write to the ERIC Clearinghouse on Tests, Measurement, and Evaluation, Educational Testing Service, Princeton, N.J. 08541 or call 609-921-9000 for a listing.

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Each article listed in the bibliography was indexed with terms from the Thesaurus of ERIC Descriptors. Descriptors were assigned to reflect

the major subject emphasis of the document. In most cases, terms such as Higher Education, Graduate Students, and so forth, were not used since that was the major focus of this bibliography and nearly all citations would have been indexed with those terms. In a few cases, where in our judgment use of these terms was justified, they were assigned.

The bibliography is divided into two sections. The first lists citations that contain substantive information related to the GREs. The second section lists reviews and commentaries on the GREs. Both sections have abstracts. Finally, while we have attempted to make this bibliography as exhaustive as possible, we may have missed a few relevant citations. Therefore, if we have not included an article or document that you feel is appropriate, please send a copy to ERIC/TM. Supplements to this bibliography will be published and will include these articles or documents.

A Brief History of the Graduate Record Examinations

The Graduate Record Examinations, known as the Cooperative Graduate Testing Program until 1940, were an outgrowth of a project funded by the Carnegie Foundation for the Advancement of Teaching in the early 1930s to study the outcomes of college education. This project--the "Pennsylvania Study"--was the first large-scale attempt to measure academic achievement in higher education by using objective multiple-choice tests. Anticipating a large increase in the number of applicants for graduate study as the Depression came to an end, the Carnegie Foundation and Columbia, Harvard, Princeton, and Yale Universities continued the work with financial support from the Carnegie Corporation of New York. Faculty committees drawn from the four universities developed tests intended to measure students' intellectual growth and development both through study of the liberal arts and through mastery of specialized fields.

The original test battery consisted of eight "profile" tests in mathematics, physics, chemistry, biology, social studies, literature, fine arts, and a "verbal factor." These tests were administered for the first time in October 1937 to first-year graduate students at Columbia, Harvard, Princeton, and Yale.

Since the profile tests were not completely appropriate for measuring one's learning in a particular discipline or major field of study, work was begun to develop 16 "advanced" tests. These were first administered in the fall of 1939.

Interest in the tests spread rapidly. In the early years of testing, validity studies were carried out at the four universities that participated initially and also at Indiana and Vanderbilt Universities, the State University of Iowa, and the Universities of Michigan, Pittsburgh, and Wisconsin. By 1940, the tests had been administered to more than 27,000 students in 14 graduate and 26 undergraduate institutions, and results were promising enough to cause widespread consideration to be given to the use of GRE scores as part of the credentials to be presented for

admittance to graduate school. In 1942, the Carnegie Corporation said in its annual report that "the examination scores alone are approximately as useful as transcript records taken alone, and the two, combined in a manner which uses the test results as a supplement to other evidence of students' qualifications, yield a better basis for classifying students than either one used alone" (quoted by Howard J. Savage in Fruit of an Impulse, p. 291).

Prior to 1942, the Graduate Record Examinations were given solely through "cooperating" institutions--that is, in the so-called "institutional mode." By 1942, however, increasing use of the examinations as part of the process of admission to graduate study led to the establishment of the first test centers at which students not enrolled in the testing institution could take the tests. The gradual shift that had led toward use in admissions was reflected in the number of undergraduate and graduate students tested: in 1938-39, 1,131 (28 percent) of the 3,869 students tested were undergraduates and by 1941-42 undergraduates accounted for 5,312 (67 percent) of the 7,936 students taking the GRE. The Independent Student Testing Program was therefore initiated in 1942-43, and in the first year 135 students were tested via the "individual mode" at 35 testing locations.

After the Second World War, as the number of students returning to academic study increased, so did the number of students taking the Graduate Record Examinations. In 1944-45, 6,446 students took the GRE; by 1948-49, the annual number had grown to 51,231.

During the same period, the emphasis of the Institutional Testing Program shifted. Initially, it was the mechanism through which graduate institutions tested their own enrolled first-year graduate students, but over the years it was increasingly used by institutions to assess the educational accomplishments of their undergraduate students.

To accomodate the particular needs of undergraduate schools, the Tests of General Education were introduced in 1946. According to the February 1947 Bulletin of the Graduate Record Examinations, these new tests were designed "to measure as directly as possible the attainment of important objectives of general education at the college level" (p. 8). The Profile Tests were still to be offered through both the Independent Student Testing Program and the Institutional Testing Program, but their use was to be "restricted to graduate and professional students and to applicants of such schools", according to the Bulletin (p. 7); and "undergraduate colleges administering the Graduate Record Examinations for purposes of general guidance and appraisal are required to administer the Tests of General Education rather than the Profile Tests" (p. 8).

Content of the Tests

In 1949, the GRE Aptitude Test was introduced as a regular part of the Graduate Record Examinations Program, leading to modifications in both the Profile Tests and Tests of General Education as their emphasis on

general verbal and quantitative abilities was reduced. The Aptitude Test, first administered as the Graduate Aptitude Test in a 1946 experiment, generated two scores: a verbal ability score and a quantitative ability score. With its introduction, the last basic piece of the Graduate Record Examinations Program as it is known today was in place.

In January 1948, the Graduate Record Examinations became the responsibility of the newly established Educational Testing Service. Almost immediately, liaison was established with a newly created Committee on Testing of the Association of Graduate Schools (AGS) in the Association of American Universities, which worked with the GRE Program office to review the tests and services that were being offered. In 1951, the name of the Independent Student Testing Program was changed to the National Program for Graduate School Selection, and changes in the test offerings continued as the needs of both the National Program and Institutional Program were continually reevaluated.

With the growth in the utility and use of the new Aptitude Test, the Profile Tests were discontinued in 1953 in the National Program and in 1954 in the Institutional Testing Program. In that same year, the Institutional Testing Program also discontinued the Tests of General Education, replacing them with the Area Tests, a comprehensive appraisal of college students' orientation in three principal areas of human culture: social science, humanities, and natural science.

In 1967, the Institutional Testing Program and use of Area Tests was discontinued. By 1964, the GRE Program included the Aptitude Test and 18 Advanced Tests in biology, business, chemistry, economics, education, engineering, French, geology, government, history, literature, mathematics, philosophy, physical education, physics, psychology, sociology, and Spanish.

In subsequent years, a number of Advanced Tests were introduced: music (1965), speech (1965), geography (1966), anthropology (1968), German (1970), and computer science (1976). And in the early seventies, several Advanced Tests were discontinued: business (1970), physical education (1970), speech (1970), and anthropology (1971).

In 1977, the Aptitude Test was restructured to yield separate scores for three areas--basic verbal, quantitative, and analytical abilities.

The GRE Board, the GRE staff, and the ERIC Clearinghouse on Tests, Measurement, and Evaluation share an interest in providing GRE users, researchers, and measurement specialists with detailed information related to the proper use of tests. We hope that this bibliography will be helpful.

Research Studies on the GRE

1a. Ager, Merlin F. A Study of the Relationships Between Selected Personality Variables and Verbal Behavior, Supervisory Ratings and Grades of Student Teachers. Ph.D. dissertation, The Ohio State University, 1967. (Order No. 68-8792.)

This study was concerned with two broad areas: student teaching performance and personality. Thirty elementary education student teachers--solely female students in a denominational liberal arts college--were given a series of personality measures before they began their student teaching. In addition, results of standardized intelligence and achievement tests they had taken previously and cumulative college achievement averages were recorded. During their student teaching, the researcher visited each student while class was in session. For each student teacher, there were at least six visits of fifteen minutes or more. College supervisors (not including the researcher) also made visits during the same eight-week period. The following independent variables related significantly at or beyond the .05 level to a greater number of verbal behaviors than chance expectations: the Minnesota Teacher Attitude Inventory, the Junior Index of Motivation Scale, the Ohio State Picture Preference Scale (two keys), total grade point averages, education grade point averages, American College Test scores, Graduate Record Examinations (humanities and Advanced Education). The Rokeach Dogmatism Scale, the JIM Scale, and the GRE (humanities) related significantly to supervisory ratings--the D Scale negatively and the others positively. The JIM Scale, education gpa, and the GRE (humanities) related significantly to grades (all positively).

2a. Albanse, Robert. Comparative Study of Undergraduate Business Majors with Undergraduate Non-Business Majors. Training Development Journal, 1970, 24(10), 34-36, 39.

Business and economics students performed significantly poorer than arts and science students on course tests and on the School and College Aptitude Test and the Graduate Record Examinations.

3a. Allen, George Cameron; Purves, Alan. The Impact of External Examinations on the Teaching of English. Study Group Paper No. 9. September 1966. 28pp. ED 082 214.

In this paper, external testing (public tests) is examined from a British point of view by George Cameron Allen; an American then responds to Allen's views. Allen discusses the history of external examinations in Britain, paying particular attention to the General Certificate of Education (GCE) examinations and the dichotomy that exists between language and literature portions of the test. Most students who are college bound are "done with English" at the age of sixteen; only those who specialize in English go on to higher level English tests focusing on literature at the university level. Because they had questions about this traditional approach to testing, the British reexamined their test forms and decided to provide an alternative test--the Certificate of Secondary Education (CSE)--which pays particular attention to the individual student, more closely relates language and literature, and provides an oral examination, which the GCE

had not provided. The American paper responds by commenting on the Scholastic Aptitude Test, noting the attention paid to vocabulary and multiple-choice items. Advantages and disadvantages of the Advanced Placement English Test and the GRE English Test are considered. The author concludes by suggesting that a profile of the student's writing may tell a great deal more than a straight examination.

4a. Angelis, Paul J. Language Testing and Intelligence Testing: Friends or Foes? Occasional Papers on Linguistics, No. 1. Carbondale, Ill.: Southern Illinois Univ., April 1977. 9pp. ED 145 677.

This paper discusses the relationship between language proficiency and intelligence. In particular, it is concerned with the elements of intelligence testing that creep into tests designed to determine language proficiency, the proliferation of testing of all types, and the kinds of interpretations made of test scores. Particular reference is made to the nonnative adult speaker of English who is frequently subjected to tests of intelligence and language proficiency. Native-speaker data indicate that the reading section of the Test of English as a Foreign Language (TOEFL) presents difficulty for the native and nonnative speaker of English alike, and that both groups find this section the most difficult of the test. A comparison of TOEFL and Graduate Record Examinations scores for foreign students applying for admission to Texas A&M University did not show a very high correlation. A Swedish study, which attempted to examine the relationship between proficiency in English as a second language and various intelligence factors, was also unable to find high correlation between language proficiency test results and intelligence test results. Indications are that the GRE and similar tests are not appropriate for determining second-language proficiency. What is needed is further investigation of the relationship between language and intelligence--in particular, joint research by linguists, psychologists, and measurement specialists.

5a. Anthony, William A.; And Others. Prediction of Human Relations Training Outcome by Traditional and Nontraditional Selection Indices. Counselor Education & Supervision, 1974, 14(2), 105-111.

This article presents a variety of traditional and nontraditional selection indices to predict the outcome of a graduate-level course in counseling designed to improve human-relations skills. Subjects were 21 graduate counseling students. Multiple correlations of .75-.80 were found between a measure of training outcomes and various combinations of predictors. A series of multiple linear regression analyses indicated that the traditional selection indices--grade point average, Graduate Record Examinations scores (both verbal and quantitative scales), and the Miller Analogies Test--accounted for a very minor amount of the variance in ratings of the final taped interview. In contrast, a newly developed selection measure (trainability index) accounted for almost all of the predictive variance. The need for a new and more efficient predictive model for graduate-level counselor training is discussed.

6a. Aptitude Test Scores of Prospective Graduate Students in Science Remained Essentially the Same from 1970 to 1975. Washington, D.C.: National Science Foundation, Div. of Science Resources Studies, September 1977. 6pp. ED 146 039.

This report summarizes an Educational Testing Service (ETS) review of mean scores on the Graduate Record Examinations of candidates for graduate study in science and engineering fields for the period 1970-1975. It was found that test results remained essentially stable within each particular field during that period. Significant differences between fields were found. In quantitative ability, science and engineering candidates averaged more than one standard deviation higher than nonscience candidates. On the average, there was no difference in verbal ability between science and nonscience groups; however, within the science fields, engineering candidates averaged noticeably lower than the others. Education candidates averaged lowest of all groups in both verbal and quantitative mean scores.

7a. Ayers, Jerry B.; Peters, R. Martin. Predictive Validity of the Test of English as a Foreign Language for Asian Graduate Students in Engineering. Educational & Psychological Measurement, 1977, 37(2), 461-463.

The validity of the Test of English as a Foreign Language (TOEFL) was examined in relation to prediction of success of 50 male Asian students who had completed master's programs in engineering, chemistry, or mathematics. A significant correlation was found between scores from the TOEFL and overall GPA. A regression equation using scores from TOEFL and the verbal section of the Graduate Record Examinations was developed.

8a. Baird, Leonard L. Biographical and Educational Correlates of Graduate and Professional School Admissions Test Scores. Educational & Psychological Measurement, 1976, 36(2), 415-420.

To understand the functions of graduate-level admission tests, the characteristics of students who scored high compared with those who scored low on three tests were examined on the basis of correlation of scores from each of the tests with a large number of other variables reflecting the student's background and educational characteristics. From a diverse sample of 21,000 college seniors in 94 colleges, students were identified who had taken the Graduate Record Examinations, the Law School Admission Test, and the Medical College Admission Test. In general, test scores were associated with characteristics reflecting academic abilities and interests and values generally congruent with the academic way of life. They were also associated, however, with some personal characteristics, which could be interpreted as showing bias in the test. It is argued, however, that they probably provide reasonably accurate assessments of the academic talent of the applicants at the time they take the test. Self-reported GRE verbal scores (GRE-V) and GRE quantitative scores (GRE-Q) were correlated with other variables in the study such as undergraduate GPA, scholarship, and so forth. GRE-V correlated highest with self-rating on writing ability and reading ability ($r = .35$), and GRE-Q correlated highest with self-rating on mathematical ability ($r = .61$).

9a. Baird, Leonard L.; And Others. The Graduates: A Report on the Plans and Characteristics of College Seniors. GRE Board Research Report GREB No. 70-4R. Princeton, NJ: Educational Testing Service, March 1973. 224pp. ED 093 185.

Ninety-four colleges administered the College Senior Survey, a machine-readable questionnaire designed for investigating the educational plans of seniors (class of 1971), their attitudes toward work, and toward the college, their backgrounds, feelings about academic performance, college careers, accomplishments outside the classroom, and perceptions of various careers and schools of advanced training. Results are categorized according to undergraduate experiences, perceptions of careers and schools, future careers, contrasting plans of men and women, survey data for black seniors, correlates of grades and test scores, and correlates of career choices and financial aid.

10a. Ballard, Rene N.; And Others. Identification and Directed Counseling of Political Science Majors. Final Report. Galesburg, Ill.: Knox College, May 1970. 16pp. ED 059 514.

This study was conducted to survey and develop a number of tools to help identify strengths and weaknesses of the majors and programs in political science at Knox College. The data that were used were cumulative average in political science, Graduate Record Examinations scores (seniors only), Scholastic Aptitude Test scores (verbal and quantitative), grade in Political Science 201 (introductory course), cumulative departmental evaluation of "options open" test of students, and intensity of counseling of students. Among the conclusions are the following: (1) the intensity of counseling activity is high and should be maintained at this level or higher; (2) the "options open" test is an important test with high correlation to success in majoring in political science; (3) information produced through the evaluation of students according to individual professors' assessments of their openness to diverse sources of information and to a variety of alternative political choices should be gathered and made available to the department as a whole; and (4) a new and simplified record form should be substituted to map out a student's strengths and areas in which support is needed.

11a. Bean, Andrew. The Prediction of Performance in an Educational Psychology Master's Degree Program. Educational & Psychological Measurement, 1975, 35(4), 963-967.

This article examines the predictive validity of the Graduate Record Examinations Aptitude Test verbal and quantitative scores (GRE-V and GRE-Q) and undergraduate GPA (UGPA). Criterion variables consisted of graduate GPA (GGPA), the Master's Comprehensive Examination (MCE) scores, and grades in individual required courses for 91 graduate students. GRE-V correlated .31 with GGPA but failed to correlate significantly with any other criterion. UGPA was not significantly related to any of the criteria. These somewhat atypical findings show the need for local validation of graduate admissions measures.

12a. Bittlingmaier, Betsy Hines. Admissions Criteria and Success in Two School Psychology Programs. Ph.D. dissertation, Fordham Univ., 1977. (Order No. 77-28070.)

This study analyzed admissions data from two universities and used the data to calculate a series of regression equations predicting graduate grade point average, faculty ratings of academic and interpersonal abilities, whether a student would receive the degree or fail to graduate, and the extent of long-term involvement in the field of school psychology after graduation. It was found that widely used admissions criteria, such as undergraduate grade point average, undergraduate grade point average in psychology, and Miller Analogies Test (MAT) and GRE scores, either alone or combined in regression equations, did not predict sufficient amounts of criterion variance to make a meaningful estimate of a student's performance in a program. The highest multiple R attained in a regression equation was in an equation predicting faculty rating of interpersonal ability. However, this rating of 56 yielded an R^2 of only .32, thus accounting for only 32 percent of the variance. A comparison of criterion means of low scorers on GRE and MAT tests indicated that, generally, criterion means for low scorers on GRE or MAT were very slightly below total-group means. These results were not consistent, however. In three cases, low scorers attained higher criteria means than high scorers. Only the comparison of GRE verbal plus quantitative scores yielded consistently lower mean scores on all three criterion variables for the group with low admissions test scores. The differences in means were not significant for any group.

13a. Blanchard, B. Everard. A Four-Year Survey of DePaul University's School of Education Master's Degree Graduates from 1966 through 1969. First Interim Report. Chicago: De Paul Univ., School of Education, 1970. 24pp. ED C50 663.

This study identified the characteristics of 456 of the 524 students who were granted a master's degree by the School of Education of De Paul University from 1966 through 1969 in one of the following areas: business education, curriculum directorship, elementary education, guidance and counseling, reading, school administration, and secondary education. Information was obtained and analyzed for the following characteristics: (1) birthplace, (2) undergraduate education, (3) residence, (4) undergraduate degree, (5) admission status, (6) grade point average entering the program, (7) age beginning graduate study, (8) area of specialization, (9) degree granted, (10) grade point average end of graduate study, (11) age concluding degree requirements, (12) time taken to complete degree requirements, and (13) Graduate Record Examinations scores.

14a. Blanchard, B. Everard. A Four-Year Survey of Master Degree Graduates. Improving College and University Teaching, 1977, 25(2), 93-99.

Attributes peculiar to students who earned master's degrees from DePaul University's School of Education from 1966 to 1969 are examined in order to judge the quality of the graduate program. Data are reported on the student's birthplace, residence, undergraduate study and degree, admission

status, GPA, specialization, age beginning and ending, degree granted, and GRE scores.

15a. Boldt, Robert F. Trends in Aptitude of Graduate Students in Science. Princeton, N.J.: Educational Testing Service, December 1976. 26pp. ED 150 483.

This study stems from the concern that recent employment trends among scientists will result in a drop in the ability of students entering scientific fields. In an attempt to provide some indication of whether this is the case, the history files of the Graduate Record Examinations were used to construct a history of Aptitude Test statistics for the years 1970-71. The chief focus of the study was the examination of possible regular changes or trends in Aptitude Test mean scores over the observed period, but the study indicates that no such changes or trends of practical significance occurred over the period. The major differences observed in scores were those between students in different fields, and these differences occurred consistently over the whole period under examination. In quantitative ability, candidates in the sciences averaged more than one standard deviation higher than candidates in nonscience fields and, within the sciences, examinees in the physical and math sciences averaged nearly one standard deviation higher than those in the life and basic social sciences. In verbal ability, the science and nonscience candidates did not differ on the average, but within the science group, engineering candidates averaged noticeably lower than the others.

16a. Boldt, Robert F. Trends in Aptitude of Graduate Students in Science. Princeton, N.J.: Educational Testing Service, January 1973. 30pp. ED 077 928.

In an attempt to determine whether recent employment trends among scientists is resulting in a drop in the ability of students entering scientific fields, GRE files were used to construct a history of Aptitude Test statistics for 1966-67, 1967-68, 1970-71, and 1971-72. For the latter three years, students were classified by the department which they indicated should receive their scores. For data from 1966-67, classifications were based on the fields in which students indicated an intention to study. The latter means were unaccountably depressed. For the last three years studied, declining trends in means were noted for physical sciences, math sciences, engineering, basic social sciences, applied social sciences, and the arts and humanities. A declining trend in quantitative scores was very strong for physical sciences, math sciences, and engineering, and a declining trend in verbal scores was also noted in the other areas mentioned above. These trends support the hypotheses of the study, but the study does not reveal any particular cause. Given these results, suggestions were made for continuing to monitor similar data and validate trends noted in the history file.

17a. Boozer, Jack S., Jr. Dropouts and Ph.D.'s from the Emory University Graduate School of Arts and Sciences, 1962-1968. Ph.D. dissertation, Emory University, 1972. 205 pp. (Order No. 72-32657.)

This study of students in the Graduate School of Arts and Sciences at Emory University attempts to answer one general question: What are the primary factors that influence a student either to withdraw from an Emory graduate program or to complete a doctoral degree at Emory? Two separate questionnaire surveys were taken of graduate students who had attended one of 11 departments some time between 1962 and 1968. Those who had dropped out of Emory during that period were sampled in 1968, and the 238 who completed their Ph.D.s within the same time span were sampled in 1969. There were 202 unsuccessful students who eventually responded to the 1968 survey. Both sample groups were determined to be representative cross-sections of their respective populations. The study is based on a comparison of the two samples using the statistical methods of cross tabulation, chi square, and multiple regression analysis. The successful and unsuccessful students are most similar in their preparation and objectives. They tend to have the same types of baccalaureate origins, comparable GRE scores, and have equal difficulty in passing the foreign language requirements. They are equally concerned with the adequacy of their preparation for graduate study when first enrolling at Emory University, but the successful students have a somewhat more realistic view of what to expect. Most students wanted to be college teachers or do research and teaching. Recommendations coming out of the study are that department programs become more flexible and that graduate students take a fuller role in designing their programs. Graduate students need the opportunity to become more thoroughly involved as whole persons in the intellectual experience. If Ph.D.s are expected to be more than professional technicians, then Ph.D. programs must encourage and reward more than technical competence.

18a. Campbell, Joel T.; Belcher, Leon H. Word Associations of Students at Predominantly White and Predominantly Black Colleges. GRE Board Professional Report GREB No. 71-6P. Princeton, N.J.: Educational Testing Service, July 1975. 204pp. ED 135 804.

This study compared word association responses for college students in three geographic areas from four different kinds of colleges: (1) selective predominantly white colleges, (2) less selective predominantly white colleges, (3) selective predominantly black colleges, and (4) less selective predominantly black colleges. Stimulus words were chosen from those used in Graduate Record Examinations (GRE) verbal test analogy and antonym items. Responses were tabulated separately by sex. There were a few words that evoked different responses from males and females, but geographic area apparently made no difference. A few stimulus words, mostly related to the "black experience," evoked different association patterns from students at predominantly black and predominantly white colleges, but most stimulus words yielded similar response patterns from both kinds of colleges. There was a comparatively high level of "no response" for those stimulus words with a Thorndike-Lorge word frequency count of nine or fewer per million counted words. This happened most frequently at the nonselective colleges, particularly at the predominantly black nonselective colleges. It was hypothesized that most often this occurred because the student was not acquainted with the word. A number of responses seemed to come from the student's having mistaken the stimulus word for one of similar appearance.

19a. Carlson, Alfred B.; and Others. The Development and Pilot Testing of Criterion Rating Scales. GRE Board Professional Report GREB No. 72-1P. Princeton, N.J.: Educational Testing Service, October 1976. 77pp. ED 163 089.

Rating scales of the "scaled behavioral expectation" type were developed to measure the constructs of independence and initiative, conscientiousness, enthusiasm, critical facility, teaching skills, research and experimentation, communication, and persistence. The scales were used by faculty in three psychology departments, two chemistry departments, and one English department. Correlations were obtained between each scale and undergraduate and graduate GPA, GRE verbal, quantitative, and Advanced Test scores, and Miller Analogies Test scores. The scales were found to have only minimal reliability and rather high intercorrelations. Further research on the scales is needed before they can be used with any confidence.

20a. Carlson, Alfred B.; And Others. The Feasibility of Common Criterion Validity Studies of the GRE. GRE Board Professional Report GREB No. 71-1P. Princeton, N.J.: Educational Testing Service, July 1974. 15pp. ED 097 367.

The Graduate Record Examinations committees for French, philosophy, and literature in English participated in an investigation of the feasibility of conducting validity studies of the GRE using a common criterion task. It was determined that such studies were not feasible. However some committee members suggested that many graduate departments use some types of ratings of graduate students; that rating-scale criteria would be generally acceptable for the various disciplines; and that it would be feasible to conduct studies using this type of criterion. It appeared from the investigation that a sufficient number of departments use a rating procedure of three or more levels to warrant an attempt to conduct some preliminary validity studies using existing rating data as criteria. The probable variation between the rating scales currently in use in departments at different universities, both in terms of attributes rated and type of scale quality, suggests that a uniform set of criterion rating scales should be developed prior to any attempt to conduct validity studies using rating scales as criterion measures.

21a. Carter, William Joseph. An Analysis of Empirically Established Hierarchies of Academic Fields of Study Based on the Graduate Record Examinations. Ph.D. dissertation, Texas A&M University, 1972. (Order No. 73-03519.)

Establishing the existence of statistically significant hierarchies of academic aptitudes among fields of study sampled by the Graduate Record Examinations posed the problem of this study. The purpose for research, therefore, was to establish empirically the existence of hierarchies among selected fields of study on both a national and a local basis. Hierarchies based on rank ordering of GRE Aptitude Test mean scores were developed to answer two underlying questions: (1) Do statistically significant differences exist among academic fields of study as determined by both verbal and quantitative GRE Aptitude Test mean scores? (2) If such differences exist, what are the patterns of significant differences? Four national

samples totaling 32,866 records were selected from a GRE national data file of 300,000 data records, while seven Texas A&M University overlapping samples were selected from seven duplicate replacement data files of 1,400 each. One hundred fifty-one national subsamples, based on combinations of GRE Advanced Test and departmental codes, were selected from the four national samples while 186 subsamples, based on a step-down sampling with replacement, were selected from the seven Texas A&M samples. The national data file included only information covering persons tested from October 1, 1969 through August 1, 1970, while the Texas A&M data file included only information covering all persons applying for graduate college admission from September 1, 1967 through December 1, 1968. Control variables common to both the national and Texas A&M sample were the GRE Advanced Test and departmental codes, whereas analysis variables common to both samples were the GRE Aptitude Test and Advanced Test scores. GRE aptitude hierarchies were developed from data reported in 18 earlier studies by other researchers. Comparative analysis of GRE aptitude hierarchies developed from the present data and those developed from the earlier studies reveal longitudinal consistencies when fields are classified on the basis of GRE Advanced Tests. Cross-sectional consistencies appear when fields within GRE Advanced Test identifications are classified by GRE department codes. The Texas A&M data reveal the following: (1) a larger percentage of statistically significant mean score differences appear as the number of observations per subsample increases; (2) a larger percentage of statistically significant differences between mean scores on the quantitative factor exist than on the verbal factor; (3) a larger percentage of aptitude mean score differences occur among subsamples of males than among females. Results from application of the proposed concepts to Texas A&M data differed from the results for the national sample only for item three where the divergence could not be determined because of the small number of females in the local sample.

22a. Colvin, Gerald F. The Value of Selected Variables in Predicting Academic Success in Graduate Education at the University of Arkansas. ED.D. dissertation, University of Arkansas, 1968. (Order No. 68-9662).

This study was undertaken to determine the value of 24 selected variables in the prediction of graduate GPA in education and noneducation courses taken at the University of Arkansas. These variable groups were: (1) the Graduate Record Examinations verbal, quantitative, and Advanced Education Test scores, (2) previous academic achievement GPA as found in the last 30 undergraduate hours, and (3) other selected biographical and education variables. Data were collected on each of the 83 graduate education students. The students fell into a variety of classifications: enrollment status, sex, doctoral major, master's major, undergraduate major, and GRE score divisions. Six of the 24 predictor variables (GRE quantitative, Advanced Education Test, and total score variables, and undergraduate composite GPA, education GPA, and noneducation GPA) demonstrated first-order correlation coefficients that were statistically significant. The four variables in the composite graduate GPA primary equation predicted 42 percent of the variance. The standard error of estimate was .19, while the standard deviation was .24. The prediction equation for the composite graduate GPA criterion was $X100041 X5 + .18066X19 - .01461X21 +$

2.33117. A number of conclusions were drawn from the study. Any increase in the Graduate Record Examinations minimum cut-off requirements for entry into the College of Education graduate program should be undertaken with the idea of both enhancing the quality of the academic experiences offered and of raising the ability level of the doctoral graduate. Faculty exchange for the purpose of evaluating teacher and departmental standards of excellence required in student performance should inject a unifying factor in educational assessment. The College of Education should continue to welcome qualified and dedicated students whose master's degrees were not in education. Prospective teachers still in the undergraduate college should be advised to take at least one strong academic major. Applicants should be cautioned that a late start in seeking the Ed.D. may be a factor in their doing poorly in some graduate areas, especially statistics.

23a. Conrad, Linda; And Others. Graduate Record Examinations Technical Manual, Princeton, N.J.: Educational Testing Service, September 1977. 112pp. ED. 163085.

This manual is intended to supplement the Guide to the Use of the Graduate Record Examinations (GRE). It provides sufficient detailed information about the GREs to permit measurement specialists and institutional researchers, as well as faculty members and administrators, to understand the development of the tests and to evaluate their usefulness. Chapters include: A Brief Historical Review of the Graduate Record Examinations; Purposes and General Characteristics of the Aptitude Test and Advanced Tests; Development of the Aptitude Test; Development of the Advanced Tests; Statistical Methods and Analyses of the Graduate Record Examinations; and, Validity of the Graduate Record Examinations. Appendixes include information unique to the Aptitude Test and to each of the 20 Advanced Tests including item types, norms, test specifications, and a variety of summary statistics.

24a. Covert, Robert W.; Chansky, Norman M. The Moderator Effect of Undergraduate Grade Point Average on the Prediction of Success in Graduate Education. Educational and Psychological Measurement, 1975, 35(4), 947-950.

Correlation coefficients between graduate grade point average and each of three predictor variables--Graduate Record Examinations verbal score, Graduate Record Examinations quantitative score, and undergraduate grade point average--were calculated for each of the six subgroups, three different levels of GPA, and sex. Results showed differential predictability across the different subgroups.

25a. Crable, Elaine Ann. A Comparison of Thought Processes as Measured by Paradigmatic Association, Graduate Record Examinations, Grade Point Average, and Faculty Ratings of Foreign- and Native-Born Graduate Students at the University of Georgia. Ph.D. dissertation, Univ. of Georgia, 1975. (Order No. 76-02219.)

The purpose of this study was to assess the thought process reflected in language performance of foreign graduate students as compared to native graduate students. The test scores of a Paradigmatic Free Association Test (P/S Inventory), the Graduate Record Examinations (GRE) Aptitude Test, the grade point average (GPA), and faculty ratings were investigated. The sample for the study consisted of 88 doctoral graduate students at the University of Georgia. Of the 88 subjects, 44 were foreign-born students with English as a second language, and 44 were native-born English-speaking students. The Paradigmatic Free Association Test was administered individually to each subject, and each subject's GRE Aptitude Test score and GPA were collected along with two faculty ratings. Significant differences for the two group means were found for the two variables of P/S Inventory and GRE verbal. Significant relationships were found between P/S Inventory scores and the GRE verbal scores, GRE verbal scores and GPA, and GPA and faculty ratings. It was concluded that the foreign group performed differently on the verbal tasks because of a lack of ability to think in contrast relationships within the English language.

26a. Cummins, Charles Leslie, Jr. A Study of Selected Aspects of the Backgrounds, Preparation Program and Career Patterns of Doctoral Graduates in Educational Administration and Supervision of the University of Tennessee. Ed.D. dissertation, Univ. of Tennessee, 1968. (Order No. 58-15412.)

This study related to individuals who received the Doctor of Education degree with a major in Educational Administration and Supervision from the University of Tennessee. The data for the study were obtained from mailed questionnaires, superiors' ratings, peers' ratings, professors' rating forms, and from records in the offices of the Department of Educational Administration and Supervision and the Graduate School of the University of Tennessee. Completed questionnaires were returned by 143, or 94.1 percent, of the 152 graduates. A total of 225 superiors' rating forms, 229 peers' rating forms and 591 professors' rating forms were returned. Four independent variables were used as criteria: age at time doctorate was received, period of graduation, type of post doctoral employment, and Graduate Record Examinations scores. Chi square tests and correlation coefficients were computed for selected aspects of the data grouped according to each of the criterion variables.

27a. Cureton, Edward E.; Scott, Thomas B. Equivalent Scores for the Graduate Record Examinations-Verbal and Miller Analogies Tests. Educational and Psychological Measurement, 1967, 27(3), 611-615.

The Graduate Record Examinations (GRE) and the Miller Analogies Test (MAT) are the two tests most widely used for admission to graduate study in American universities. Since they are issued by different publishers, equivalent scores have not been reported previously. The results of the analysis reported in this article are based on 1,341 pairs of scores from 11 universities that showed the two linear equations yielding results which, when rounded to the nearest MAT unit or the nearest GRE verbal 10, do not differ by more than 1 MAT unit or 10 GRE verbal units.

28a. Curtin, Patrick Jude. A Survey of Doctoral Graduates' Opinions on Selected Components of the Educational Administration Program at Syracuse University from 1964 to 1974. Ph.D. dissertation, Syracuse Univ., 1976. (Order No. 77-9850.)

This study was designed to secure graduates' opinions on selected components of the doctoral program in Educational Administration and Supervision at Syracuse University. After a careful review of the data pertinent to the objectives of this study. The study was limited to the 90 Doctorate of Education and Doctorate of Philosophy graduates of the department who completed their studies from January, 1964, through December, 1974. Questionnaires were completed by 73 (81 percent) of the graduates. Average Miller Analogies Test scores for 66 respondents were 57.36 percent. Cumulative academic averages were 3.55. On a five-point scale (1--excellent, 2--good, 3--fair, 4--poor, 5--unsatisfactory), a vast majority of the respondents gave high ratings to the following entrance requirements: experiential background, 1.985; letters of recommendation, 2.2120; personal interview, 1.770. The opposite was true for two components: Graduate Record Examinations, 2.810; Miller Analogies Test, 2.660. Data compiled on 66 of the graduates' Miller Analogies Test scores, academic achievement, present position in educational administration, and satisfaction with their present position demonstrated no significant correlation. Three of the four variables indicated a negative correlation.

29a. Davis, Jefferson Vernon. A Follow-Up Survey of the Recipients of the Earned Doctor of Philosophy and the Doctor of Education Degrees Awarded at the University of Mississippi, 1893-1967. Ph.D. dissertation, Univ. of Mississippi, 1969. (Order No. 70-11481.)

The purpose of this study was to collect certain personal, vocational, and academic information from recipients of the earned Doctor of Philosophy and the Doctor of Education degrees awarded at the university and to obtain the recipients' evaluations of the university's doctoral programs by soliciting their ratings of some of the doctoral-level subjects they had taken and some of the activities they had engaged in. The names and addresses of the recipients were obtained from publications of the Bureau of Institutional Research, University of Mississippi. A questionnaire was designed to elicit both specific and general information. The data secured from the completed questionnaires were tabulated by schools and disciplines and were presented in tables. A majority of the respondents were employed in education at one level and in one phase or another in the southeastern section of the United States prior and subsequent to the receipt of the doctorate. Over three-fourths of the respondents completed their doctoral studies in 15 semesters or less after having received a master's degree or the equivalent in number of hours or credits. The majority of the respondents favored a combination of Aptitude and Advanced Test scores on the Graduate Record Examinations and grade point average as the principal criteria for selection of applicants for the university's doctoral program. The findings also indicated that they were in favor of relatively high cut-off scores on the Graduate Record Examinations.

30a. Dawes, Robyn M. A Case Study of Graduate Admissions: Application of Three Principles of Human Decision Making. American Psychologist, 1971, 26(2), 180-188.

This study is concerned with the decision-making process rather than with the validities of the criteria on which the decision is based. The predictions tested are derived from past theory and research dealing with clinical versus statistical prediction. It examines three principles of human judgment as related to graduate admissions. The first is that a linear combination of the variables considered by an admissions committee does a better job of predicting graduate success than does the committee. The second principle is that the committee's judgment may itself be represented or simulated by a linear combination of the criteria it considers. The third is that this simulation is superior to the committee in predicting graduate success. Data from the Department of Psychology at the University of Oregon were used to test these principles. Included were GRE Aptitude Test scores, grade point average, quality of the undergraduate institution attended, the average rating of the admission's committee, and a faculty rating.

31a. Domb, Jo Ann Leary. Relationship Between Selected Predictor Variables and Graduate Success Criteria at the University of Cincinnati College-Conservatory of Music. Ed. M.E. dissertation, Univ. of Cincinnati, 1977. 151pp. (Order No. 78-01681.)

The purpose of this study was to assess the validity of the Graduate Record Examinations (GRE) verbal, quantitative, and Advanced Music Test scores and the undergraduate grade point average (GPA) as predictors of success in a graduate music program at the University of Cincinnati College-Conservatory of Music. Success criteria were specific graduate-course area GPA's and the cumulative master's or doctoral GPA. The subjects were 422 graduate students entering the College-Conservatory of Music between 1970-71 and 1975-76. Many correlation coefficients between predictor variables and success criteria were significant at the .001 level when combined data were used; however, no single predictor could account for more than 25 percent of the variance in an achievement measure. Undergraduate GPA was the best single predictor of the cumulative master's GPA and the cumulative doctoral GPA and was a better predictor of achievement in most graduate music-course areas than were GRE scores. (A primary exception was that the GRE quantitative and Advanced Music Test scores were the best predictors of achievement in theory courses.) The GRE Advanced Music Test was a better predictor of achievement in graduate music courses than were GRE Aptitude Tests, but GRE quantitative scores were better predictors than were GRE verbal scores. It was found that when the same single predictors were used in combination they had more predictive power than when used singly. Students with high undergraduate GPA's, GRE Advanced Music Test scores, and GRE quantitative scores have less probability of being placed on probation and of failing the oral examination on the first attempt than do other students. Since higher correlation coefficients are obtained when all predictor variables are combined, it is recommended that the undergraduate GPA and GRE

Aptitude and Advanced Test scores be utilized as predictive tools in the selection of students for admittance to the University of Cincinnati College-Conservatory of Music.

32a. Dreese, Richard N.; Russell, William M. An Investigation of the Validity of the Graduate Record Examinations and Certain Personality or Interest Tests in Predicting Academic Performance in the Management Curriculum of the United States Naval Postgraduate School. Monterey, Calif.: U.S. Naval Postgraduate School, 1964. 70pp. (Order No. AD-480-892/ 9ST).

Certain aptitude and personality tests were given to the 1964 Management curriculum military officer students of the U.S. Naval Postgraduate School, and the scores were correlated with the academic grades received during the first three terms. The results confirm that the Graduate Record Examinations are an excellent predictor of academic performance and indicate that neither the Structured Objective Rorschach Test or the Allport-Vernon-Lindzey Study of Values are useful predictors of academic performance in the Management curriculum. It is recommended that the Graduate Record Examinations be administered to candidates for the Management curriculum and that selection boards be advised of the results for use in selecting future classes.

33a. The Prediction of Doctorate Attainment in Psychology, Mathematics and Chemistry: Preliminary Report. GRE Board Research Report GREB No. 69-6aR. Princeton, N.J.: Educational Testing Service, August 1972. 17pp. ED 069 664. (See 99a)

34a. Elster, R. S.; Githens, W.H. Selection of Officer/Students for Graduate Education. San Diego, Calif.: Navy Personnel Research and Development Center, 1974. 8pp. ED 114 414:

Confined to existing monetary and human resources, the Navy's Postgraduate Selection Board is responsible for selecting officers for graduate education who will both perform well and develop skills applicable to later Navy billets. Although different methods have been employed in this selection process, most decisions have been based on officer fitness reports and prior academic records. Data from the Graduate Record Examinations (GRE), Strong Vocational Interest Blank (SVIB), and a biographic data form were used in attempts to predict Naval Postgraduate School grade averages in four separate curricula: Operations Research/Systems Analysis, Aeronautical Engineering, Communications Management, and Management. Results indicate that academic aptitude and biographic data could be used for selection. Implementation would require that biographic data and GRE scores be available for all candidates. The cost of developing these data would seem small in light of (1) the time that would be saved by streamlining the postgraduate selection process, and (2) the more effective use of officer and student human resources.

35a. Evans, Frank. The GRE-Q Coaching Instruction Study. GRE Board Professional Report GREB No. 71-5a P. Princeton, N.J.: Educational Testing Service, September 1977. 34pp. ED 163 088.

A special course was designed to aid undergraduate subjects in preparing for the Graduate Record Examinations quantitative test (GRE-Q). The course included a short, one-session discussion (Anxiety Reduction Session) of the GRE and its uses and four sessions devoted to specific instruction in the basic mathematics required for the test and strategies for approaching the various types of questions. The content outline of the course is included in this report. The course was offered to junior-year volunteers at 12 colleges. Colleges were selected to maximize the participation of black and Chicano students; predominantly white schools were also included. Detailed results are presented; however, the reader is cautioned that the differences observed during the analyses, while statistically significant, may be caused by factors not under the control of the investigator such as differential attrition rates and levels of motivation for various subject groups. The results of the analyses suggested that: (1) the instructional program produced a small, consistent increase in GRE-Q scores; (2) the increase appeared to occur early in the program; and, (3) there was no evidence that the program was differentially effective for the sexes or the ethnic groups studied.

36a. Ewen, Robert B. The GRE Psychology Test as an Unobtrusive Measure of Motivation. Journal of Applied Psychology, 1969, 53(5), 383-387.

The student's preparation for the GRE Advanced Psychology Test of the Graduate Record Examinations (GRE-P) may serve as an unobtrusive measure of motivation necessary for success in graduate school whether or not the content of the test taps abilities necessary for success. To test this hypothesis, records of 31 male graduate psychology students were obtained. Predictors included GRE-P, GRE verbal and quantitative Aptitude Tests, Miller Analogies Test (MAT), undergraduate overall and undergraduate psychology GPA, and number of psychology courses taken prior to the GRE. Criteria included percentage of "A" grades in graduate school and graduation versus termination. Only GRE-P and a difference score consisting of GRE-P minus MAT showed significant validity against the criteria. The results were interpreted as supporting the hypothesis.

37a. Federici, Louise; Schuerger, James. Prediction of Success in an Applied M.A. Psychology Program. Educational and Psychological Measurement, 1974, 34(4), 945-952.

This study investigated the extent to which traditional indices (GRE and Miller Analogies Test scores, undergraduate GPA, and letters of recommendation) and less traditional measures (interview ratings and biographical information) would predict each of two criteria of success in a subdoctoral program in applied psychology: (a) academic competency (graduate GPA) and (b) faculty ratings of selected interpersonal skills. The traditional measures were modestly related to academic competency. Interview ratings and letters of recommendation failed to show a relationship to either GPA or ratings of interpersonal skills.

38a. Flatt, Bill. Predicting Academic Success of Graduate Students in Religion. Review of Religious Research, 1973, 14(2), 110-111.

This article emphasizes the need for predictors of academic success. There is need to know the relationship between certain factors and "the academic success of students in the theological seminary." No single prediction has been found to be always reliable. The best predictions examined in this study were: undergraduate grade point average, GRE composite scores, and undergraduate major. No significant difference was discovered between the academic success of full-time and part-time students. Evidence points towards the need for further study and for continued use of multiple criteria by admissions committees with emphasis upon the undergraduate grade point averages as predictors of academic success.

39a. Florida Atlantic University. The Centers of Discovery Program. Boca Raton: Florida Atlantic Univ., 1969. 53pp. ED 038 361.

This preservice education program, begun in 1964, consists of a two-year series of four interdisciplinary education courses whose objectives are to help students gain a feeling of adequacy as educators and help them acquire the necessary background and skills for problem solving in teaching. Important features of the program include independent reading and self-testing, video-tape viewing, instruction by teaching teams, small-group discussions, laboratory experience as a teacher's aide, and an in-depth research report extending over the entire program. Evaluation of the program was accomplished by comparing with national norms participants' performance on the Graduate Record Examinations Advanced Education Test, soliciting opinions from students currently enrolled in the program, and asking student teachers who had completed the program to evaluate their training. Two follow-up studies were conducted. One surveyed opinions of inservice graduates about their total professional training, and the other asked school principals to evaluate program graduates with respect to 24 traits. (The appendixes contain samples of some of the evaluation forms and details of the results, and a pamphlet outlines the teacher-aide program.)

40a. Florida State Department of Education. The Suitability of the College Level Examination Program (CLEP) for Admitting Vocational Education Teachers to Graduate Schools of Education in the State Universities of Florida. Final Report. Tallahassee: Florida State Dept. of Education, Div. of Vocational, Technical and Adult Education, 1973. 67pp. ED 007 420.

This project examines the suitability of the General Examinations of the College Level Examination Program (CLEP) as an alternative battery to the Aptitude Test of the Graduate Record Examinations (GRE) for the admission of vocational education teachers to master's-level study of vocational education. The CLEP battery was administered to 732 vocational education teachers in Florida. Test norms for the teachers on the battery were constructed as a basis for defining an acceptable cutoff score for graduate study at the master's level. Recommendations are that: (1) The CLEP be used as an alternative battery to the GRE Aptitude Test in the admission of vocational education teachers to graduate study in vocational education leading to a master's degree; and (2) that a total cutoff score of 2,250

for the five tests comprising the General Examinations Battery of the CLEP be adopted for admission of vocational education teachers to master's-level study. Additional recommendations and appendixes of related material are included.

41a. Frederikson, Norman; Ward, William C. Development of Measures for the Study of Creativity. GRE Board Professional Report GREB No. 72-2P. Princeton, N.J: Educational Testing Service, June 1975. 53pp. ED 128 442.

A set of tests that might be reasonably used as provisional criterion measures in research on scientific thinking, particularly creative thinking, were developed and an assessment was made of the suitability of these tests as criterion variables from the standpoint of their psychometric properties. The Tests of Scientific Thinking are performance tests that simulate aspects of the job of a behavioral scientist. The tests are: Formulating Hypotheses, Evaluating Proposals, Solving Methodological Problems, and Measuring Constructs. The examinee proposes a number of solutions--not only the one considered best, but also others that should be considered. A scoring method was developed that requires the scorer to assign values to categories of responses rather than make subjective evaluations. Six scores were studied: (1) average quality of the responses the examinee thinks are best, (2) average quality of all responses, (3) average quality of the best response by category scoring, (4) number of responses, (5) number of unusual responses and, (6) number of responses that are both unusual and of high quality. The tests were administered to about 4,000 graduate-school applicants using an item sampling procedure. Test difficulty was found appropriate for advanced students and reliabilities were high enough to be useful. Factor analyses were performed to clarify the structure of the interrelationships among the various scores for the four tests. The tests seemed face valid, but evidence of construct validity is needed.

42a. Frederiksen, Norman; Ward, William C. Measures for the Study of Creativity in Scientific Problem-Solving. Applied Psychological Measurement, 1978, 2(1), 1-24.

A set of Tests of Scientific Thinking were developed for possible use as criterion measures in research on creativity. Scores on the tests indicate both the quality and quantity of the ideas produced in formulating hypotheses, evaluating proposals, solving methodological problems, and devising methods for measuring constructs. Correlations with GRE scores were low, especially for scores based on number of ideas. GRE scores were better for predicting "quality" but poorer as predictors of accomplishments and self-appraisals.

43a. Frederiksen, Norman; And Others. New Tests of Scientific Creativity Show Promise. Findings, 1975, 2(4), 5-8.

In an effort to measure aspects of problem-solving or creative behavior, two or three experimental items (item sampling method) were administered to

3,600 individuals as part of the Graduate Record Examinations Advanced Psychology Test. Eighty-two percent of the results were scorable and were analyzed by four independent judges using a category-ranking procedure. Findings revealed three distinct and independent abilities involved in scientific thinking. Follow-up activity will involve further assessment of this subject group and will relate experimental scores to other variables.

44a. Gab, Del D. Prediction of Success for Doctoral Students in Education at the University of North Dakota. Ed.D. dissertation, The University of North Dakota, 1969. (Order No. 70-11398.)

The purpose of this study was to ascertain whether there is a relationship between selected variables and three criteria of success for doctoral students in education at the University of North Dakota (UND). The variables included were: (1) area of concentration (teacher education or administration), (2) years between bachelor's degree and doctoral admission, (3) years between master's degree and doctoral admission, (4) whether or not the master's degree was received from UND, (5) age when doctoral candidate applied for admission, (6) cumulative GPA for bachelor's degree, (7) cumulative GPA for master's degree, (8) number of courses in education before starting the doctoral program, (9) number of years of educational experience, (10) GRE verbal score, (11) GRE quantitative score, (12) GRE Advanced Education Test score, (13) Miller Analogies Test (MAT) score, (14) degree sought (Ed.D. or Ph.D.), and (15) sex. The criteria of success were cumulative doctoral grade point average, graduated or not graduated, and Judgment Analysis rating. In general, the GRE tests serve as useful predictors of these criteria. Interestingly, the MAT is not seen as a particularly useful predictor. In considering the doctoral GPA as a criterion, some rather discrepant results occur. The most important criterion is age (the younger, the higher the GPA). The GRE quantitative and MAT were dropped almost immediately in the stepwise backward elimination procedure. The GRE quantitative was the next-to-last variable to be dropped as a predictor of graduation, which might indicate that getting good grades and graduating are not synonymous. A negative relation exists between the GRE quantitative and doctoral GPA ($r = 1.0$); on the other hand, a positive relation exists between the GRE quantitative score and whether or not the student graduated ($r = .337$). One might hypothesize that contrary to the students' probable perception, the doctoral GPA is a largely meaningless quantity if it exceeds the minimum required for graduation; it has meaning only for the student who is not permitted to continue in the program because of a low grade point average.

45a. Garrett, Kenneth. The Relationship Between Critical Thinking Ability, Personality, and Academic Achievement of Graduate Students in the School of Education at the University of Southern California. Ph.D. dissertation, Univ. of Southern California, 1978. (Copies available from Micrographics Department, Doheny Library, USC, Los Angeles, CA 90007).

This study investigated relationships between critical thinking ability and several personality dimensions. The project explored whether critical thinking ability could be utilized as a predictor of academic success. For this presentation, critical thinking is defined as the ability to logically assess whether statements are proposed correctly. Although a substantial amount of research has been conducted in the area of critical thinking as a basic component of abstract reasoning, researchers in this area have recently become concerned as to whether measured ability in critical thinking relates to other variables, such as intelligence, reading ability, or the introversion-extroversion dimension. The study was designed to establish whether critical thinking was related to such variables as ego strength and resistance to neuroticism. A sample of 100 students enrolled in the University of Southern California's School of Education was utilized to investigate the possible existence of a relationship between scores on the Cornell Critical Thinking Test Level Z and selected research scales on the Minnesota Multiphasic Personality Inventory. To insure that there were a specific number of high critical thinkers, a stratified random sample was conducted using Graduate Record Examinations scores as the criteria for placing students in one of four basic categories. Students were also separated on the basis of sex since personality attributes do not seem to vary uniformly between males and females. One year after the original testing, subjects were contacted to determine how many total graduate units they had completed, as well as their current graduate grade point index. The results indicated that: (1) no significant relationships exist between critical thinking and neuroticism in either females or males in this population; (2) that a significant relationship exists between ego strength and critical thinking ability in females only; and (3) that significant relationships exist between grade point average, total graduate units completed, and critical thinking ability in both female and male students.

46a. Gharavi, Ebrahim. Admission of Foreign Graduate Students: An Analysis of Judgments by Selected Faculty and Administrators at North Texas State University. Ph.D. dissertation, North Texas State Univ., 1977. (Order No. 77-19668.)

The problem of this study was to determine by means of the Judgment Analysis (JAN) Technique the admission policies of selected faculty and administrators for foreign graduate students at North Texas State University. The subjects were 64 randomly selected foreign graduate students (all male) enrolled at North Texas State University during the spring semester of 1976. A profile data sheet developed for each subject included information on 15 attributes to be used as predictor variables: age, marital status, school last attended, degrees held, years of English study, GPA in English courses, Test of English as a Foreign Language (TOEFL) score, financial support, GRE verbal score, GRE quantitative score, GRE total score, credit hours attempted, credit hours completed, cumulative GPA earned during the first semester, and tentative major. Thirty-five judges, selected from graduate faculty and administrators with major responsibility for admitting graduate students, were asked to rank each of the 64 profiles in a hierarchical manner. The salient

predictor variables--TOEFL, GRE verbal, GRE quantitative, GRE total, and GPA first semester--were attended to by the judges. There was a high positive correlation between criterion and predictor variables. The most attended to salient variable was the TOEFL with a multiple R of .82. The selected variables related to the admission of foreign graduate students produced a high-positive coefficient of multiple correlation, R ranging from .56 to .93.

47a. Goldberg, Lewis R. Admission to the Ph.D. Program in the Department of Psychology at the University of Oregon. American Psychologist, 1977 32(8), 663-668.

This report describes the graduate admissions process at the University of Oregon and presents analyses of data from over 1,000 applicants. Included in the report are some characteristics of accepted (9 percent) and rejected (91 percent) applicants and the probability of an invitation as a function of the applicant's undergraduate GPA and Graduate Record Examinations scores. Some conclusions and recommendations are presented. The most important recommendation is for the rapid development of a centralized application system for all graduate programs.

48a. Goodnight, Clarence J.; Kastrinos, William. The GRE Advanced Biology Examination. BioScience, October 1976, 26(10), 620-623.

This article describes the content areas, construction, and analysis of the Graduate Record Examinations Advanced Biology Examination. Also included are reliability coefficients, student profiles, content validity and predictive validity of the test.

49a. Grasz, Carol Scavnicky. A Study to Determine the Validity of Test Scores and Other Selected Factors as Predictors of Success in a Basic Course in Educational Administration. Ed.D. dissertation, Rutgers Univ., The State Univ. of New Jersey, 1977. (Order No. 77-13463.)

The purpose of this study was to investigate standardized test scores and selected personal factors to determine significant relationships in the prediction of academic success in a basic course of educational administration. The criterion of success employed was the grade achieved in the course. The population consisted of 382 graduate students enrolled in the Graduate School of Education, Rutgers University, The State University of New Jersey between 1962 and 1975. Statistically significant relationships, at or below the .05 level, were found between: Grade in course and Critical Thinking Appraisal score and a negative correlation with Religious values, as measured by Study of Values; program level and political values, as measured by Study of Values, Critical Thinking Appraisal, Graduate Record Examinations--verbal, quantitative, and total; age during course and Economic, Political and Religious values, as measured by Study of Values, Minnesota Teacher Attitude Inventory, Critical Thinking Appraisal, and Miller Analogies Test; sex of student and Theoretical, Aesthetic, Social and Political values, as measured by the Study of Values, Minnesota Teacher Attitudes Inventory and Graduate

Record Examinations--quantitative; department affiliation and Economic, Social and Political values, as measured by the Study of Values and Critical Thinking Appraisal. Significant relationships were found between standardized test scores and personal factors, which pointed out substantial differences among members of the student group. These differences did not affect grade in the course, the measure of success.

50a. Greene, Billy Albert. A Comparative Study of Doctoral Students Enrolled in Non-Traditional and Traditional Preparatory Programs in Educational Administration. Ed.D. dissertation, Univ. of Northern Colorado, 1975. (Order No. 75-23311.)

The purpose of this study was to discover if the two groups were different in background, Graduate Record Examinations scores, college quarter hours of prior preparation in 20 subject areas, and in personality. Students in the nontraditional program were older, had more years of educational experience, had more educational administration experience, and were receiving higher salaries than were doctoral students enrolled in the traditional program. Analyses and interpretations of the data for the Graduate Record Examinations Aptitude and Area Tests revealed no statistically significant differences between the two groups. Students drawn from the nontraditional program had a significantly greater number of college quarter hours in Organization and Administration of the Public School, Elementary School Organization and Administration, and Supervision and Sociological Foundations of Education than did doctoral students enrolled in the traditional program. Doctoral students enrolled in the traditional program tend to be more cheerful, active, talkative, and frank than the random sample of nontraditional students. Students from the nontraditional program tend to be more self-motivated, imaginatively creative, and oblivious to physical realities than students in the traditional group.

51a. Hackman, J. Richard; And Others. Prediction of Long-Term Success in Doctoral Work in Psychology. Educational and Psychological Measurement, 1970, 30(1), 365-374.

This study examined four sets of predictors in a study of 42 doctoral candidates' classroom performance, Ph.D. progress and status six years after enrollment in the program. Undergraduate GPA in psychology was correlated .3 with end-of-year GPA but not with long-term criteria. Graduate Record Examinations scores were correlated with short- and long-term criteria. Hours of undergraduate language courses were negatively correlated with long-term criteria. Rated quality of undergraduate college was correlated .3 with perceived progress toward Ph.D. as well as adjudged success six years after enrollment.

52a. Hansen, W. Lee. Prediction of Graduate Performance in Economics. Journal of Economic Education, 1971, 3(1), 49-53.

The use of undergraduate grade point average and the GRE quantitative score as predictors of economics graduates' grade point averages was

improved by introducing a School Quality Index, yielding multiple correlation coefficients of up to .50.

53a. Harmon, Lindsey K. Fourteen Years of Research on Fellowship Selection. Washington, D.C.: National Research Council, 1966. 30pp. (available from the National Academy of Sciences, \$1.50)

A summary of research efforts and findings from 1952-1966 in a program designed to improve techniques for selection of National Science Foundation Fellows. This extensive research on graduate-school selection resulted in a series of 26 technical reports on problems ranging from improvement in report forms to long-term, on-the-job validation of selection instruments. This summary report highlights reliability and validity of a series of predictors and predictor composites, including Graduate Record Examinations, undergraduate science grade point average, and professor's confidential reports. Development of criteria of performance and of composite criteria is described. An index is included.

54a. Hartnett, Rodney T.; Centra, John A. The Effects of Academic Departments on Student Learning. Journal of Higher Education, 1977, 45(5), 491-507.

This study concerned the effects of academic departments on student academic achievement as measured by Graduate Record Examinations (GREs) and the field tests of the Undergraduate Program (UP) of the Educational Testing Service. The UP sample included between 35 and 43 departments from each of four fields: biology, business, mathematics, and psychology. In the GRE sample, between 32 and 52 departments were included from each of six fields: biology, literature in English, history, mathematics, chemistry, and psychology. Department information was obtained through a mail questionnaire survey of a national sample of colleges and universities. Results of regression analysis indicate that there are considerable differences between departments within many institutions. There was little support for the idea that it is advisable to analyze educational effects on a more micro level, by studying student growth in specific subspecialties within disciplines; there was no evidence that such subspecialty analyses yield sufficient additional information about the effectiveness of academic departments. None of the various departmental or student descriptors used in the study were consistently correlated with academic aptitude regression residuals.

55a. Harvey, Philip R.; and Lannholm, Gerald V. The Performance of Foreign Graduate Students on the Graduate Record Examinations Aptitude Test. GRE Special Report 61-1. Princeton, N.J.: Educational Testing Service, September 1961.

This study was undertaken for two reasons: first, to obtain interpretive data that would be helpful in evaluating the performance of foreign students on the GRE Aptitude Test and, second, to ascertain what effect,

if any, several months study in American graduate schools would have on the performance of foreign students on this test. Test score data were collected on 637 foreign students at four graduate schools. Verbal and quantitative score distributions are presented. The authors found that Aptitude Test scores for college seniors, as presented in Scores for Basic Reference Groups, were higher than mean verbal ability scores for the foreign students. Quantitative ability mean scores for the foreign students, however, were substantially higher than those of college seniors. Test/re-test data showed no gain in mean verbal ability test scores but showed statistically significant gains on the quantitative ability score.

56a. Harvey, Philip R.; Pitcher, Barbara. The Relationship of Graduate Record Examinations Aptitude Test Scores and Graduate School Performance of Foreign Students at Four American Graduate Schools. GRE Special Report 63-1. Princeton, N.J.: Educational Testing Service, April 1963.

This report is the second in a series on the use of the Graduate Record Examinations Aptitude Test for appraising the qualifications of foreign students at graduate schools in the United States. In the first report, results on the GRE Aptitude Test verbal ability and quantitative ability sections were presented for foreign students attending graduate schools at four American universities. This report presents an evaluation of the GRE Aptitude Test scores for predicting the academic success of these same foreign students.

57a. Heritage, John O. A Validity Study of Admission Criteria for Masters Students in a Reading Program. M.Ed. dissertation, Rutgers Univ., The State Univ. of New Jersey, June 1977. 67pp. ED 144 035.

The purpose of this study was to investigate the predictive validity of the admission criteria for master's degree students in reading: undergraduate grade point average (GPA), Graduate Record Examinations (GRE) scores, undergraduate college quality, and age. Data were gathered for 94 former master's degree students at Rutgers University, including 53 who had obtained the M.Ed. and 41 who had dropped out. The graduated and not-graduated groups differed significantly only on the GRE verbal scores. For the graduated group, GPA and age yielded significant correlations with the time-to-degree criterion. The results from this study were interpreted as being consistent with those of other predictive studies in education.

58a. Hinrichs, Vance Henry. An Analysis of Selected Factors Associated with the Graduate Record Examinations of Three Colleges. Ed.D. dissertation, Univ. of Nebraska-Lincoln, 1968. 180 pp.(Order No. 68-18047.)

The purpose of this study was to analyze the variation in the Graduate Record Examinations test scores of students in selected Lutheran colleges and determine if the discernible differences have any significant relationship to selected measurable environmental and academic influences. The

study included students from Concordia Senior College of Fort Wayne, Indiana, Concordia Teachers College, River Forest, Illinois, and Concordia Teachers College, Seward, Nebraska. All students graduating from these colleges in 1964-65 were included in the study. The following factors were selected for study and analysis in an effort to determine the degree of relationship between admission and instructional factors and Graduate Record Examinations scores: (1) the size of the community in which the student resided for the major portion of his life; (2) the size of the high school from which the student graduated; (3) academic performance in high school as represented by the student's class rank in the graduating class; (4) the placement-test credentials presented at the time of admission into college; (5) the student's course work in the areas tested by the Graduate Record Examinations; (6) the preparation of the college instructor in these areas; (7) the amount of money expended for instructional purposes. Analysis of the data provided the following information: (1) the combined graduating classes of three colleges obtained a mean score that exceeded the national norm in quantitative, humanities, and natural science tests. The mean score for this group was lower than the national norm in the verbal and social science areas; (2) classified analysis of the Graduate Record Examinations scores suggested that the transfer student was a significant factor in the variation of scores; (3) in the population studied male graduate performance on the Graduate Record Examinations was higher than female; (4) the student graduating from Concordia Senior College demonstrated superior ability as a freshman as tested by the Sequential Tests of Educational Progress; (5) population density and the size of the high school graduating class showed no significant relationship with the results of the Graduate Record Examinations; (6) rank in the high school graduating class showed a significant relationship with the scores on the Graduate Record Examinations; (7) the Sequential Test of Educational Progress showed the highest correlation with the Graduate Record Examinations; (8) no significant relationship could be found between the amount of course work in an area and the scores on the Graduate Record Examinations; (9) no significant relationship could be found between the instructor preparation index and student performance on the Graduate Record Examinations; and (10) the rank of the amount expended per student by each of the three colleges is identical to the rank of the composite performance on the Graduate Record Examinations.

59a. Houston, Samuel H.; Strohmeier, Eric. A Study of the Validity of the GRE Battery in Predicting Four Criteria of Success in Doctoral Degree Programs. Journal of the Student Personnel Association for Teacher Education, 1979, 8(3), 90-96.

Predictor variables for this study included two Graduate Record Examinations (GRE) Aptitude Test scores, three GRE Advanced Test scores, and the GRE Advanced Education Test score. Criterion variables included: (1) grade point average, (2) graduation versus dismissal from program, (3) normative judgment analysis (JAN) rating, and (4) ipsative JAN rating. Except for the normative JAN criterion, multiple correlation coefficients were all statistically significant, though weak from a predictive viewpoint.

60a. Hsia, Hsio-Hsuan. A Study of Selected Intellectual Factors Related to Academic Performance in Graduate School. Ph.D. dissertation, Northwestern University, 1968, 201 pp. (Order No. 68-3191.)

The purpose of this study was to investigate the predictive validity of selected intellectual factors for the estimation of academic performance in graduate school. The predictors were: (1) Graduate Record Examinations scores, (2) undergraduate grades, and (3) grades from other graduate studies. The subjects were 815 students who registered for the first time at Northwestern University during 1964-65. A series of multiple regression analyses were undertaken to select the best combination of predictors for the estimation of first-year graduate grade point average. A cross-validation sample of 391 Northwestern graduate students who first registered during 1965-66 was selected to validate the findings of the study. Multiple regression analyses showed that Graduate Record Examinations verbal scores, undergraduate grades and grades from other graduate studies were significant as predictors of first-year graduate grade point average. The multiple R's were significant and ranged from .19 to .38. For institutional types regression analyses, undergraduate institutions were classified into four types according to relative size of undergraduate and graduate grade averages. Coefficients of correlation ranged from .02 to .70. These values were generally higher in absolute value than the coefficients of correlation obtained from the total sample. For two of the four types of institutions, the differences were statistically significant. On regression analyses by graduate major fields, seven series of separate regression analyses yielded significant correlation coefficients from .17 to .51. These were higher in absolute value than those obtained from the sample as a whole, but the differences were not significant. To determine a reasonable maximum value for coefficients of correlation between undergraduate and graduate grades, a regression analysis was performed for a group of graduate students who attended Northwestern as undergraduates. The analysis yielded coefficients of correlation ranging from .34 to .54. When the multiple correlation coefficient was corrected for attenuation due to curtailment of predictor variables, values from .56 to .81 were obtained. Cross-validation of the regression equations indicated that while the relationship between the intellectual predictors studied and graduate grade point average was not of a magnitude to permit accurate predictions for individual cases, these coefficients appeared to be stable for a different group of graduate students.

61a. Huberty, Carl J.; Smith, Douglas U. Measures of Discrimination Among Achievement Levels in Statistics. 1975. 18pp. ED 109 254.

Eight discriminators were identified and data were obtained from the records of 80 graduate students who attained one of four achievement levels at the conclusion of a beginning course in educational statistics. Although the internal discriminatory power of the set of eight measures was very high, estimates of the true power were discouragingly low. Two GRE measures were judged to be the best discriminators. Nevertheless, they were very poor either considered alone or in combination. Prediction

for the second achievement level appeared fairly strong, even for an external analysis. Linear as well as quadratic classification results are included.

62a. Humphreys, Lloyd G.; Taber, Thomas. Postdiction Study of the Graduate Record Examinations and Eight Semesters of College Grades. Journal of Educational Measurement, 1973, 10(3), 179-184.

This report concerns the examination of data from a postdictive study of the tests of the Graduate Record Examinations and the eight semesters of undergraduate grade averages, with each semester's average computed independently of the rest. Postdictive validities of the Aptitude portions of the GRE were essentially similar to predictive validities obtained earlier by the senior author. Both predictive and postdictive validity gradients over the eight semesters were relatively steep, with freshman grades having the highest correlations with the tests. The validity gradient for all Advanced Tests combined did not follow the pattern for the Aptitude Tests, but neither did it show the opposite gradient. Advanced Test results were most highly correlated with sophomore grades, but the validity gradient over the eight semesters was relatively flat. A small-scale extension of this research into post-baccalaureate training indicated that senior grades were most predictive of graduate criteria, but a larger-scale study is suggested. Possible implications for ability theory and for selection of graduate students are discussed.

63a. Humphry, Betty. A Look at Some Data About Music Tests in National Testing Programs Geared to College-Level Courses. Council for Research in Music Education, Bulletin No. 56. Urbana: Univ. of Illinois School of Music, Fall 1978.

This article provides information about research on music testing in national testing programs geared to college-level courses. Data based on the study of relationships between performance on a written test and a listening test demonstrate the usefulness of questions based on taped stimulus material. The same data also provide insights into the types of course preparation that appeared to influence the performance of the students who took the two tests. Examination of developments in music testing over the years reveals a trend toward more detailed score reporting, such as the provision of assessment indicators and of subscore information. There is also an attempt to systematically obtain more background information about those who take the tests.

64a. Krasno, Richard Michael. Initial Rapport and Survival in Teaching as a Function of the Educational Attitudes of Beginning Teachers. Ph.D. dissertation, Stanford Univ., 1971. 203 pp. (Order No. 71-19715.)

Thirty male and one hundred twenty-four female prospective teachers were given a battery of inventories prior to teacher training. On the day immediately following the administration of the inventories, each subject taught a 40-minute lesson to 20-30 secondary school students. After the lessons the students were asked to rate each subject on a 20-item Pupil

Inventory which elicited responses from the students concerning the teacher-student rapport developed over the 40-minute lesson. From this rating each subject was assigned a rapport score based on the 11 items found through factor analysis to be highly loaded on the same factor. High-rapport subjects differed from low-rapport subjects in their greater flexibility, higher sensitivity to the needs of individual students, and generally more progressive educational philosophy. Discriminant analyses were performed using the predictor variables of (1) the California F-Scale, (2) the Kerlinger Scale of Educational Progressivism, (3) the Kerlinger Scale of Educational Traditionalism, (4) the Graduate Record Examinations verbal test, and (5) the Graduate Record Examinations quantitative test. Results of the discriminant analyses indicated that these tests neither singly nor in combination could significantly or efficiently discriminate either high- from low-rapport subjects or survivors from nonsurvivors.

65a. Krogstad, Jack; Harris, Jon. The Emerging Group of CPAs in the CMA Program. The Ohio CPA, 1975, 34(3), 121-127.

Entry into the program for a Certificate of Management Accounting (CMA) is open to anyone with a bachelor's degree, satisfactory GRE or ATGSB scores, or a CPA certificate. To obtain a CMA certificate, one must pass an exam within three years and have two years of management accounting experience completed within seven years after the exam. Also, 30 hours per year of professional study in each three-year period is a must for CMA holders. Many CMAs are also CPAs, and most are employed in teaching, industry, and public accounting. Most are men who average 36 years of age and earn salaries ranging from \$23,000-\$39,000. Most CMAs-CPAs were motivated to get their certificates for personal reasons. Job- or benefit-related motives were of minor importance. Many felt that the CMA certificate is not accorded the prestige it deserves and that it should be made mandatory for CPAs working in management accounting.

66a. Lafferty, Gladys, E. A Study of the Influence of Age on Predictability of Graduate Record Examinations Aptitude Tests for Successful Graduate Students. Columbia: South Carolina Univ., 1969. 39pp. ED 029 606.

The purposes of this study were to determine the influence of age on academic achievement, investigate relationships between Graduate Record Examinations Aptitude Test scores and graduate grade point ratios (GPR), and evaluate the student sample in terms of national norms. The assumption underlying the study was that significant differences in the accuracy of GRE Aptitude Test scores as a predictor would result as a direct function of age. The sample consisted of 393 students who had received master's degrees in 1966 and 1967 in 18 different areas of specialization. Findings revealed that the assumption underlying the study could not be substantiated. For the group as a whole, no significant differences in means of GRE total Aptitude Test scores or in mean graduate GPRs were found. The oldest group had the lowest GRE scores, showed a tendency to earn slightly lower quantitative ability scores than the younger students, but earned the highest graduate GPRs. For education students, GRE total scores were

found to predict graduate GPRs better for those 30 years of age and above than for those in their twenties. Age had little correlation with GRE scores for the men, but it was associated with both GRE scores and GPRs for the women. The men and women in the sample exceeded the 1964-1967 national norms for their sexes in all instances, except for male performance in verbal ability.

67a. Lannholm, Gerald V.; And Others. Cooperative Studies of Predicting Graduate School Success. GRE Special Report 68-3. Princeton, N.J.: Educational Testing Service, August 1968. 95pp. ED 163 083.

This report presents the results of studies in which 10 graduate schools cooperated. One or more graduate departments participated in each of six different disciplines: chemistry, English, history, philosophy, physics, and psychology. Students who first enrolled for graduate study in these departments during 1957, 1958, 1959, and 1960 constituted the subjects for the studies. Predictor data obtained for the students included scores on the Graduate Record Examinations Aptitude Test and/or an Advanced Test and, for the students in some of the departments, their undergraduate grade point averages. Two types of information were obtained as assessments of performance in graduate study: departmental ratings of the quality of graduate work and a classification of each student's academic status ("earned Ph.D.," and so forth) as of October 1963. The results varied widely from group to group and the generalizations made in the report are tentative. Noting the critical importance of graduate study and effective prediction of success, the authors end the report by presenting what they feel are recommendations that might help improve prediction: clarify "the nature of success in graduate school," explore issues involved in assessing the performance of each student, identify additional predictors of success, and form an overall grading of "promise" on the basis of all information available on a student at the time of admission.

68a. Lannholm, Gerald V.; And Others. Review of Studies Employing GRE Scores in Predicting Success in Graduate School, 1952-1957. GRE Special Report 68-1. Princeton, N.J.: Educational Testing Service, March 1968. 41pp. ED 163 084.

In this report, thirty-eight different studies that employed GRE scores in predicting success in graduate study are reviewed. The report is presented in four sections: I. Summary of Findings by Major Field of Study (23 different major fields); II. Studies Employing Varied Criteria of Success (N=21); III. Studies Employing Grade-Point Average as the Criterion (N=13); and, IV. Predicting Graduate School Success of Foreign Students (N=2). Section I was generated from the 38 abstracted studies presented in sections II-IV. Although the authors caution the reader about the dangers of drawing conclusions from the findings of the many and varied studies covered in the report, they nonetheless make four broad generalizations: (1) students with higher test scores perform at a higher level in graduate school than students with lower test scores; (2) the verbal ability score tends to be most highly related to performance in subjects of a descriptive nature--for example, the humanities--while

the quantitative ability score is usually more predictive in the physical sciences; (3) Advanced Test scores in the appropriate subject were useful predictors and improved the correlation when used along with the Aptitude Test scores; and, (4) best prediction was obtained when undergraduate record and test scores were used in combination.

69a. Lannholm, Gerald V. Summaries of GRE Validity Studies 1966-1970. GRE Special Report 72-1. Princeton, N.J.: Educational Testing Service, February, 1972.

This report summarizes 14 studies received by the GRE Program Office after the publication in March 1968 of GRE Special Report No. 68-1. (See ED 163 084, p. 59.) Among these studies are two unpublished master's theses, two departmental memoranda, five institutional research reports, two prepublication drafts of research reports, and two journal articles. Except where the data for two or more departments are pooled, the number of students in the samples studied was small. Nine of the studies are concerned with students in only one discipline. Four of the others make separate analyses by department. Ten of the fourteen studies included some measure of undergraduate performance as well as GRE scores among the predictor variables. As with the previous report, the author qualifies his summary statements by urging caution. Three generalizations are made: both undergraduate record and test scores are positively related to performance in graduate study; use of some rating of the quality of the applicant's undergraduate institution seems sufficiently promising to suggest its use in more research studies; and, there is a need for still further work on the development of satisfactory criteria of success in graduate study.

70a. Lannholm, Gerald V. The Use of Graduate Record Examinations in Appraising Graduate Study Candidates. Princeton, N.J.: Educational Testing Service, October 1962.

Results of a questionnaire sent to some 200 graduate schools are summarized in two sections. The first section presents a global analysis of the replies. The second discusses each of the 11 questions in detail and presents "typical" replies. The inquiry touched upon: (1) types of information used to appraise applicants for graduate study; (2) specific uses made of GRE scores and which scores are required (Aptitude, Advanced, combination); (3) level at which test scores are used (master's, doctoral, both); (4) setting of minimum scores; (5) relationship between high and low GRE scores and satisfactory graduate work; (6) cases where GRE scores were unusually helpful; (7) validity studies carried out by the institution.

71a. Leuck, Lowell A.; Urychi, Michaeline. Graduate No-Show Study, Fall 1974. Macomb, Ill.: Western Illinois University, 1974. 15pp. ED 116 518.

This study attempts to follow up students who were admitted to the Graduate School at Western Illinois University but failed to enroll. The study is designed to (1) evaluate present services to potential graduate students and (2) better predict what proportion of accepted applicants will enroll. The

no-shows are compared for the fall quarters of 1971, 1972, and 1974 and are analyzed by sex, mean GRE scores, residence, and undergraduate rank in class. The reasons for not attending Western Illinois are analyzed for those attending some other graduate school as well as for those not enrolled elsewhere. The most frequently cited reasons involved financial problems. A series of recommendations resulted from this study including improving correspondence with prospective students and increasing financial aid.

72a. Lunneborg, Clifford E.; Lunneborg, Patricia W. Doctoral Study Attrition in Psychology. Seattle: Washington Univ., Bureau of Testing, May 1972. 25pp. ED 065 042.

The primary motivation behind this prediction study was the concern voiced over the problem of attrition in graduate school. Noting a 45 percent dropout rate among psychology doctoral students who began between 1955 and 1964 and were studied in 1968, one author deplored the loss in time and effort to students and faculty when students leave graduate school. Also of interest were possible sex differences in the variables used to select candidates, and the reasons behind male and female graduate students' dropping out. Thus, 123 graduate students entering the University of Washington Department of Psychology between 1963 and 1967 were studied. Although progress toward the Ph.D. was not highly related to admissions data such as GRE scores and undergraduate grades, performance in the first year was found to be predictive of later success. Evidence of sex discrimination was minimal and subtle. It is suggested that greater attention be directed toward measuring attrition from the program.

73a. Lunneborg, Clifford E. Summary of GRE Data for Graduate Programs at the University of Washington 1970-1971. Seattle: Washington University, Bureau of Testing, March 1972. 5pp. ED 064 303.

This report provides data on the Graduate Record Examinations covering the period from October 1970 through September 1971 and covering all score reports forwarded to the University of Washington during the year. Scores are included not only for students who completed applications but for those who may have submitted only GRE scores. Table 1 reports data extracted from summary reports received for the individual departments.

74a. Lynch, Samuel Wesley. A Comparative Study of California Campus and Noncampus Doctoral Students in the School of Education, University of Southern California. Ph.D. dissertation, Univ. of Southern California, 1975. 146 pp. (Order No. 72-28639.)

This study dealt with the question of differences between the students taking classes on the main Los Angeles campus and students taking classes in Regional Graduate Centers off campus. A stratified random sample of Ed.D. and Ph.D. students was made from all students passing the Admissions Examinations during a five year period. Data were collected, and interviews with teaching faculty were carried out. Results showed that: (1) there was no difference between off-campus students and

on-campus students on: (a) passing the Qualifying Examination, (b) completing the degree, or (c) time taken to complete the degree; (2) there was a difference in the number of off-campus students who seek the Ed.D. degree (the numbers were higher off-campus); (3) there was no difference in Ed.D. and Ph.D. students on (a) passing the Qualifying Examination, (b) completing the degree, or (c) time taken to complete the degree; (4) there was no difference in off-campus students and on-campus students in (a) undergraduate grade point average, (b) graduate grade point average, and (c) Graduate Record Examinations scores; (5) there was no difference in off-campus students and on-campus students in their perceptions of (a) the usefulness of the predoctoral courses offered, (b) faculty teaching effectiveness, and (c) course content and its relevance to course title and subject; (6) the faculty teaching in the off-campus programs viewed the off-campus students differently than on-campus students in that off-campus students (a) get inadequate counseling and advisement, (b) have better communication with their professors during class, (c) have a higher anxiety level, (d) require more in the affective domain, (e) have a higher level of practical experience, (f) go through less defined screening and enrollment procedures, (g) are more fatigued, (h) have a higher mean age, (i) show greater concern over the quality of assignments, and (j) are more motivated; (7) there was no correlation between having high or low Graduate Record Examinations scores and time taken to complete the degree.

75a. Mann, C. John. Quantitative Evaluation of Applicants for Graduate School. Journal of Geological Education, 1977, 25(4), 118-119.

This report argues that the combined plots of Graduate Record Examinations (GRE) scores are useful data for appraising the ability of prospective graduate students to successfully complete the requirements of a doctoral degree.

76a. Marco, Gary L. The Performance of First-Year Graduate Students on the GRE. GRE Special Report 68-2. Princeton, N.J.: Educational Testing Service, July 1968. 30pp. ED 163 091.

The purpose of this study was to obtain normative data on the performance of first-year graduate students on the Aptitude Test and Advanced Tests of the Graduate Record Examinations. The population of the study consisted of those students who enrolled as full-time graduate students for the first time in the fall of 1964 in a college or university belonging to the Council of Graduate Schools (CGS). Subpopulations within each institution were composed of students enrolled in graduate study in 18 major fields -- biology, business, chemistry, economics, education, engineering, French, geology, government, history, literature, mathematics, philosophy, physical education, physics, psychology, sociology, and Spanish. Majors in these fields took both the Aptitude Test and the appropriate Advanced Test. Norms are provided for the verbal and quantitative sections of the Aptitude Test by major field of study and for performance on the 15 Advanced Tests. Accuracy of the data is discussed,

and the appendixes contain the names of the institutions participating, the plan of data collection, weights used in preparing the frequency distributions, and specific fields classified under particular major fields for sampling purposes.

77a. McPeck, Miles; And Others. An Investigation of the Feasibility of Obtaining Additional Subscores on the GRE Advanced Psychology Test. GRE Board Professional Report GREB No. 74-4P. Princeton, N.J.: Educational Testing Service, April 1976. 60pp. ED 163 090.

This study was undertaken to determine whether additional information useful for guidance or placement could be derived from existing Advanced Tests. The number of subscores currently reported for each Advanced Test is limited by the high reliability required for subscores used in making admissions decisions. Subscores used only for guidance and placement would not need to meet such a rigorous standard of reliability. Subscores based on eight content areas were identified by the GRE Advanced Psychology Test Committee of Examiners; analyses of these experimental subscores, of the two currently reported subscores, and of the total score were carried out for two forms of the Advanced Psychology Test. Analysis of the reliability of the differences among the experimental subscores showed that for most students additional information about strengths and weaknesses in some of the eight subscore areas could be obtained. The particular subscores for which useful information could be obtained varied from student to student. This finding was supported by an examination of 50 randomly chosen answer sheets. It was concluded that subscores based on the content areas identified by the Committee of Examiners may have potential for providing additional information for purposes of guidance and placement about most students who take the Advanced Psychology Test. Subscores based on a factor analysis of the test, however, were judged not to have equivalent potential.

78a. Mehrabian, Albert. Undergraduate Ability Factors in Relationship to Graduate Performance. Educational & Psychological Measurement, 1969, 29(2), 409-419.

This report concerns a study of the records of 79 graduate students. A factor analysis was made of their GRE verbal and quantitative scores, Miller Analogies Test scores, overall undergraduate GPA, junior and senior GPA, mathematics and logic course grades, rating by undergraduate psychology department, research experience, promise as a researcher, research versus service orientation, and achievements in graduate school. Six factors with eigenvalues greater than 1 were found: ability, undergraduate GPA, research orientation, GPA improvement, sex, and mathematics training. Scores on the ability factor mainly determined ratings of student promise. A regression equation including five of these factors was constructed. The higher zero order with graduate school performance was GRE-MAT. Five variables were added to increase R by 14.

79a. Merenda, Peter F.; Reilly, Raymond. Validity of Selection Criteria in Determining Success of Graduate Students in Psychology. Psychological Reports, 1971, 28(1), 259-266.

The purpose of this study was to validate a set of six predictor variables against a discrete criterion measuring success in graduate study in psychology. The predictors were: (1) total undergraduate GPA, (2) GPA in psychology courses, (3) the three Graduate Record Examinations, and (4) a rating of the college in which the baccalaureate degree was earned. The criterion was trichotomized into two success-level categories and a failure category. Multiple discriminant analysis of the data, based on a sample of 77 students who had been admitted to graduate study in psychology, yielded a statistically significant value of D^2 (p .001). The greatest weight in providing the maximum separation among the three criterion groups was assumed by total GPA, GRE Advanced Test score, and the grades in undergraduate psychology courses.

80a. Michael, William B.; And Others. Correlates of a Pass-Fail Decision for Admission to Candidacy in a Doctoral Program in Education. Educational & Psychological Measurement, 1971, 3(2), 965-967.

This study explored the interrelationships among a number of selected variables involved in a doctoral committee's pass-fail decisions for a sample of 844 graduate students. The variables included scores on the Graduate Record Examinations and the comprehensive examination (CE). Results show moderate intercorrelations among the five parts of the CE (.32-.57) and somewhat lower correlations for the GRE scores (.11-.49). It is concluded that the pass-fail decision of the committee was substantially dependent on total scores on the CE and only slightly related to GRE scores.

81a. Murphy, Harry J.; Jacobs, L. Ronald. A Profile of CSUN Deaf Students, Fall Semester, 1976. 1977. 25pp. ED 142 022.

This report describes the deaf student population ($n=171$) at California State University, Northridge, for the fall semester of 1976. Statistical data are presented for the following variables: age and sex, audiometric data, other handicapping conditions, age of onset, residence by place of birth and place of high school graduation, type of high school background, previous postsecondary experience, Scholastic Aptitude Test and Graduate Record Examinations scores, class standing, number of units carried, enrollment in classes, special services in classes, and comparison of majors of hearing and deaf students. Among other things, a summary of the results shows that one-third of the students graduated from a residential school for the deaf while two-thirds graduated from day schools, day classes, or regular high schools, that most students have had a previous postsecondary experience before coming to the university, and that there was an overwhelming preference by deaf students for a career in education.

82a. Nagi, John L. Predictive Validity of the Graduate Record Examinations and the Miller Analogies Test. Educational & Psychological Measurement, 1975, 35(2), 471-472.

This report describes a study of a sample of 63 graduate students, 33 of whom did complete and 30 of whom did not complete a doctoral program in educational administration at the State University of New York at Albany. Statistically nonsignificant point biserial coefficients of 0.140 and 0.087 were determined respectively for the total scores on the Aptitude portion of the Graduate Record Examinations and scores on the Miller Analogies Test relative to the dichotomous criterion of completion or lack of completion.

83a. Nelson, Anna M. Implementing Mastery Learning in a Teacher Education Program. Florida Journal of Educational Research, 1975, 17, 23-33.

The purpose of this study was to determine the validity of the practice of permitting teacher-education students to repeat examinations to attain passing grades in the first two courses of the educational sequence. Differences between students who repeated exams and those who did not in frequency of program completion, GPAs, and performance on the Graduate Record Examinations (GRE) Advanced Education Test were assessed. Data from 593 students show that there were no significant differences between students obtaining an initial grade of C and those obtaining a repeated grade of C in (1) completion or noncompletion of the program, (2) grade in student teaching, (3) supervising teacher's rating, or (4) GRE scores.

84a. Newman, Richard I. GRE Scores as Predictors of GPA for Psychology Graduate Students. Educational & Psychological Measurement, 1968, 28(2), 433-436.

The purpose of this study was to ascertain the predictive validity of the Aptitude and psychology portions of the Graduate Record Examinations (GRE) for 66 graduate students in psychology. Product-moment correlation of raw scores obtained from the GRE measures and graduate grade point average (GPA) were calculated. It was shown that the GRE is an inefficient predictor of graduate grades and has little relationship to undergraduate grades for this relatively unrestricted sample of subjects.

85a. Nieves, Luis. The GRE and the Minority Student: A Perspective. Princeton, N.J.: Educational Testing Service, September 1976. 29pp. ED 135 827.

In this report, alternative admission systems are reviewed in respect to the minority applicant in an attempt to assess the nature of the bias frequently referred to in connection with standardized testing. The connection between the use of the Graduate Record Examinations (GRE) as a standardized test and the admission system was explored, and it was concluded that the role and importance of the GRE as an admission criterion was determined by the type of admission system adopted. The psychometric definitions of test fairness (as opposed to bias) were also reviewed, and

it was noted that there are several conflicting definitions of test fairness and that these definitions are in keeping with the types of admission systems currently in use. The validity of the GRE was examined, and it was found that the validity, as with most standardized tests, varied with the validity criterion used and various other factors. The report stresses the need for local departmental validity studies and special studies for minority groups. Of the three major types of bias common to standardized testing--content bias, environmental bias, and utilization bias--the last was noted as bearing most directly on the concern about testing as a barrier to the admission of minority students into educational institutions. In the last analysis, the question of testing as a barrier rests with the values that dominate the selection of admission criteria in general. These criteria, usually selected with an eye to the outcome of an educational process, are perceived as the necessary prerequisite to a successful academic experience.

86a. Novicki, David Joseph. Prediction of Success in Counselor Education Programs. Ph.D. dissertation, Purdue Univ., 1976. 135 pp. (Order No. 77-7502.)

Exploratory and descriptive in nature, this study sought to determine the relationship between information about applicants to a counselor education program and (1) admission or denial of admission and (2) the performance of admitted applicants during the master's-level course of study in the program. Information about applicants was defined as: (1) undergraduate grade point average, (2) previous work experience, (3) ratings of letters of recommendation, (4) Graduate Record Examinations scores, (5) sex, (6) age at the time of application, and (7) undergraduate area of concentration. Criterion data incorporated in the investigation included the following: (1) record of admission or denial of admission, (2) grade achieved in Education 610 (practicum), (4) cumulative master's level grade point average, (5) supervisory evaluation in Education 610 laboratory (prepracticum), and (6) major advisor rating of student's overall performance in the program. On nearly all of the variables, admitted applicants were found to have differed significantly from those who were not admitted. They had higher undergraduate grade point averages, higher GRE verbal and total test scores, and higher-rated letters of recommendation. Admission of females outnumbered admission of males at a frequency greater than would be expected by chance. The frequency of admission of applicants with undergraduate majors in education, sociology or other humanities was greater than for other major areas studied.

87a. O'Dell, Jerry W. The EPSAT as a Predictor. Journal of Psychology, 1973, 85(1), 165-167.

In this study the mathematical sections of the Engineering and Physical Science Aptitude Test (EPSAT) and the Graduate Record Examinations (GRE) were administered to two classes of 31 students in graduate psychological statistics. Results showed high correlations between EPSAT scores and course grades (.64 and .43). The GRE quantitative section provided similarly high correlations with grades (.79 to .72). It is suggested that statistics course grades are best predicted by mathematics test scores.

88a. Ogden, Verna Albertson. Predicting Academic Success and Real-Life Success for Prospective Reading Specialists. Ph.D. dissertation, Univ. of Pennsylvania, 1975. 86 pp. (Order No. 77-4679.)

The major purposes of this investigation were (1) to identify variables that predict academic success in a graduate program in reading/language arts, (2) to identify factors related to post-master's performance in terms of real-life success, (3) to identify factors related to persistence in the field of reading/language arts, and (4) to analyze differences in the real-life success of the experimental- and regular-program graduates. The following were used as predictor variables in this study: undergraduate grade point average (U-GPA), rating of undergraduate college, age, years of teaching, number of children, Graduate Record Examinations Aptitude Test scores--verbal (V), quantitative (Q), and total (T)--and graduate grade point average (G-GPA). Criterion variables measuring aspects of career success were: G-GPA, salary, supervisory responsibility, job satisfaction, professional involvement, and community involvement. Of the success criteria analyzed in this study, G-GPA was found to be the most predictable. The traditional measures of U-GPA, GRE-V, and GRE-Q were found to be significantly related to G-GPA. The findings were in agreement with earlier studies of the prediction of real-life success in that G-GPA was found to be a relatively poor predictor. Age and years of teaching were both found to be positively and significantly related to number of civic and social groups. This is to be expected because of the probability that older students will be more settled and, therefore, more likely to become actively involved in community activities. The predictor variable, rating of undergraduate college was found to be significantly related to both salary and number of people supervised. These correlations were negative, indicating that those attending high-quality undergraduate institutions end up in jobs with low salaries and little responsibility for supervising other adults. None of the predictor variables were significantly related to either job satisfaction or involvement in professional groups.

89a. Pannier, James McKinnon. An Evaluative Study of the Masters Degree Program in School Administration at Montana State University--An Appraisal by the Graduates. Ed.D. dissertation, Montana State Univ., 1971. 150 pp. (Order No. 72-8881.)

This evaluative study of the Masters of Education Degree Program in School Administration at Montana State University was designed to obtain feedback from the graduates to determine their career-development patterns, their opinions as to the strengths and weaknesses of the curriculum that was offered, and their suggestions for improving the program. To determine the representativeness of the sample, Graduate Record Examinations scores and grade point average were secured for all graduates from whom these data were available. Neither the mean GRE or GPA scores of the respondents differed significantly from the mean scores of the total population when the t-test was used at the .05 level of significance. Among the important conclusions drawn from the study were: (1) the Masters Degree Program in School Administration at Montana State University is well accepted by the

graduates, (2) the number of graduates completing all their course work in summer sessions seems to be increasing slightly, (3) an administrative internship was considered a valuable experience in the student's preparation program, (4) consideration should be given to establishing minimum scores on the verbal and quantitative segments of the Graduate Record Examinations, (5) consideration should be given to incorporating greater information on management and budget systems in education, and (6) there seems to be a more positive attitude among recent graduates concerning the value of the written comprehensive examination and preparation of the professional paper.

90a. Pemberton, Carol. A Comparison of High Ability Under-Achievers with Low Ability Over-Achievers. Newark: Delaware Univ., Newark, Division of Academic Planning and Evaluation, March 1968. 24pp. ED 077 398.

In this study, the responses of 30 college seniors who overachieved in terms of predicted grade point average (GPA) were compared with the responses of 38 high ability underachievers. Graduate Record Examinations (GRE) scores and GPA's were compared with those of two groups of students performing as predicted. Overachievers were found to be particularly dependent on the good opinion of others. Underachievers prefer to do things in their own way, regardless of what other people think, and are interested in a wide range of cultural, social, and athletic activities. The underachievers obtained a higher average GRE area test score than the overachievers, their superiority being greatest in natural science. This is also the area in which they compared most favorably with the overachievers. Implications for counseling and graduate school admissions are pointed out.

91a. Pickens, Thomas A. A Logistic Quantal Response Model for Estimating the Probability of Graduate Success. Wright-Patterson AFB, Ohio: Air Force Institute of Technology, School of Engineering, June 1971. 86pp. Available from the National Technical Information Service. (Order No. AD-725 057)

The primary method for estimating the correlation between GRE Aptitude Test scores and the probability of graduate success involves calculation of the sample correlation coefficient. Since this approach is questioned for prediction or policy formulation, the logistic quantal response model is suggested as a means for estimating the functional relationship between the probability of achieving the graduate degree and the GRE Aptitude Test scores. Data from the Air Force Institute of Technology graduate systems analysis, graduate aeronautical-mechanical engineering, and graduate logistics management programs were used as the basis for estimating the probability of achieving the graduate degree with a nominal 95 percent confidence limit for this probability.

92a. Portig, Janet Hilliker. University of Kentucky Master's Degree Graduates and Non-Graduates: A Test of Holland's Theory of Vocational Choice. Ed.D. dissertation, Univ. of Kentucky, 1974. 168 pp. (Order No. 75-26479.)

The purposes of this study were to determine if univariate significant differences existed between master's degree graduates and nongraduates on 14 commonly utilized variables and to determine if the prediction of graduation at the master's-degree level could be improved through the use of Holland's classification system, which is based on his theory of vocational choice. It was concluded that there were statistically significant mean differences between master's-degree graduates and nongraduates, and that the prediction of graduation at the master's-degree level using Holland's classification system was not possible with the 14 variables that were included. It was suggested, however, that the best discriminating variables were: the Graduate Record Examinations verbal score for male graduates and nongraduates and a combination of undergraduate grade point average and time between the bachelor's degree and graduate school admission for female graduates and nongraduates.

93a. Powers, Donald E. A Factor Analytic Study of the GRE Aptitude Test. GRE Board Professional Report GREB No. 75-11P. Princeton, N.J.: Educational Testing Service, 1977. 90pp. ED163 081.

Separate factor analyses of two operational forms of the Graduate Record Examinations (GRE) Aptitude Test were undertaken to gain a better understanding of the abilities that contribute to performance on the examination. Results suggest that three global abilities--two verbal and one quantitative --are being consistently tapped by the GRE Aptitude Test. Other less prominent dimensions--some of which appear to be specific to test forms--were noted also. These dimensions revealed aspects of the test that are related to item type, speededness, and the content of reading passages. Factor extension analysis was used to estimate the loadings on these operational test factors of new items from eight experimental tests administered with the operational forms. Statistical removal of the extended factors from the matrices of tetrachoric interitem correlations of the experimental tests and examination of residual relationships and amount of variance explained suggested that the experimental tests are, in general, adequately explained by the factors in the operational tests. There are, however, several dimensions in the experimental tests distinct from the factors underlying the operational forms. Recommendations based on the findings of the analyses are made concerning subtest length, item arrangement, and passage content. The factor analysis method is seen as having relevance in supplementing more traditional item classification and analysis techniques and for the planned restructuring of the GRE Aptitude Test.

94a. Rawls, James.; And Others. An Investigation of Success Predictors in Graduate School in Psychology. Journal of Psychology, 1969, 72(1), 124-129.

The purpose of this study was to investigate the utility of a number of predictor variables, both old and new, in discriminating between three groups of psychology graduate students: 25 who earned a Ph.D., 25 who earned a terminal M.A., and 25 who earned neither degree. The Miller Analogies Test, GRE, and overall undergraduate GPA failed to differentiate

the three groups. Partitioning transcript information showed some predictability in that Ph.D.s had more undergraduate hours in psychology, foreign languages, biology, math, and natural and physical science. Ph.D.s also had higher GPAs in humanities, natural and physical science, math-science courses, and combined sciences. Biographical information also showed some predictive potential.

95a. Reilly, Richard R.; Jackson, Rex. Effects of Empirical Option Weighting on Reliability and Validity of the GRE. GRE Board Professional Report GREB No. 71-9P. Princeton, N.J.: Educational Testing Service, 1972. 29pp. ED 069 738.

Item options of shortened forms of the Graduate Record Examinations verbal and quantitative tests were empirically weighted by two variants of a method originally attributed to Guttman. The first method assigned to each option of an item the mean standard score on the remaining items of all subjects choosing that option. The second procedure assigned the mean score on a parallel form of all persons choosing the option. Compared with formula scores, it was found that scores generated with the empirical weights were more reliable but less valid when correlated with undergraduate grade point average (GPA). Test homogeneity was increased through empirical option weighting, and factor analysis revealed large increases in variance accounted for by the first factor. Examination of the actual weights assigned to each option revealed that the weight for omit in most cases differed considerably from the weight that would be assigned under the usual formula score assumptions. It was suggested that the weighting procedures that were used tended to capitalize on omitting behavior, which, although a highly reliable tendency, may actually be negatively related to the GPA criterion used.

96a. Reilly, Richard B. Empirical Option Weighting with a Correction for Guessing. Educational & Psychological Measurement, 1975, 35(3), 613-619.

Because previous reports have suggested that the lower validity of test scores with empirical option weights might be explained by a capitalization of the keying procedures on omitting tendencies, a procedure was devised to key options empirically with a correction-for-guessing constraint. The new procedure was used with Graduate Record Examinations data taken from two samples totaling 9,916 answer sheets. Results show smaller increases in reliability than those observed when unconstrained procedures were used, but validities for quantitative subforms were lowered slightly.

97a. Roberts, S. Oliver; And Others. SAT Versus GRE Performance of Negro American College Students. Proceedings of the 77th Annual Convention of the American Psychological Association, 1969.

This paper reports that longitudinal changes from Scholastic Aptitude Test to Graduate Record Examinations Aptitude Test scores for 349 seniors were found to differ by sex, regional background, and major fields. Males

showed a significant absolute increase in quantitative mean score and a relative gain in national percentile standing. Women did the same in the verbal area and also improved their percentile position in the quantitative area. Honor students and those going on to advanced study had considerably higher scores than the others, with some percentile gain from freshman to senior year. These results, although highly limited as criteria, are viewed against recent critical evaluations of black American higher education.

98a. Rock, Donald A. Identification of Population Moderators and Their Effect on the Prediction of Doctorate Attainment. GRE Board Professional Report GREB No. 69-6bP. Princeton, N.J.: Educational Testing Service, 1975. 41pp. ED 163 086.

The purpose of this research project was to evaluate the potential of GRE Aptitude and Advanced Tests as predictors of a dichotomous criterion of whether or not the candidate attained the doctorate within a specified length of time. Specifically, the project attempted to: (1) define subgroups for which the GRE tests have varying degrees of validity, and (2) provide biographical profiles of each subgroup as well as the optimal predictive equation for those subgroups. It was found that the GRE Advanced Tests were consistently the best predictors of Ph.D. attainment. However, the predictive accuracy of the GRE Advanced Tests varied considerably across graduate fields and in one case within a graduate field--that is, prediction on the whole was considerably more accurate in the "hard science" graduate areas of mathematics and chemistry than in psychology. Within the psychology area there was a U-shaped relationship between predictability and age showing that the total sample regression equation led to greater predictive accuracy for the younger and the older age groups. The middle age group was not only less predictable but the errors in prediction tend to lead to underestimation of their actual rate of Ph.D. attainment. Thus, the middle age group was characterized by overachievement.

99a. Rock, Donald. Prediction of Doctorate Attainment in Psychology, Mathematics and Chemistry. GRE Board Research Report GREB No. 69-6aR. Princeton, N.J.: Educational Testing Service, 1972. 17pp. ED 069 664.

Data from the National Science Foundation Fellowship applicant records and the NRC Office of Scientific Personnel Doctorate Records File were utilized to evaluate the potential of GRE Aptitude and Advanced Tests as predictors of whether or not the candidate attained the doctorate within a period of from seven to ten years. In addition, the study sought to determine whether there were particular subgroups within each field, as described by variables such as age, quality of the institution or graduate department, for which the Graduate Record Examinations have varying degrees of predictive accuracy. Samples ranging from 643 to 779 were obtained for three fields--mathematics, chemistry, and psychology--and divided into two samples so that cross-validation could be performed. Results indicate that mathematics and chemistry had higher levels of

predictability than psychology. In all three fields, the GRE Advanced Tests were the best predictors. Age was a better predictor for math than for psychology or chemistry.

100a. Rock, Donald A. The "Test Chooser": A Different Approach to a Prediction Weighting Scheme. GRE Board Professional Report GREB No. 70-2P. Princeton, N.J.: Educational Testing Service, November 1974. 54pp. ED 163 087.

First-year graduate students were asked to respond to a biographical questionnaire that emphasized motivational variables in addition to the usual demographic variables. It was hypothesized that the students could select from a group of ability measures the one best indicator of how well they would do in graduate school. To test this hypothesis, the sample was divided into two parts--those who felt tests were the least indicators of success (test choosers) and those who felt that some other means of assessment was the best for them (non-test choosers). Within-group regressions were then computed and compared using path analysis techniques. The obtained empirical least squares weighting system gave support to the possibility that graduate students could identify those predictors that would yield minimum errors of prediction for them. Indications of the importance of motivational measures as predictors for those who didn't choose testing were noted.

101a. Roscoe, John T.; Houston, Samuel R. The Predictive Validity of GRE Scores for a Doctoral Program in Education. Educational & Psychological Measurement, 1969, 29(2), 507-509.

For this study, Graduate Record Examinations (GRE) scores of 231 persons who completed a doctoral program were available as were their GPAs and information concerning their graduation. Profiles of test scores and other predictive data were given 16 graduate professors who rated each student's prospects as a doctoral student. They were also asked to rank those whom they know. Correlations of GRE with GPA ranged from .14-.32, with normative judgment analysis at .16-.53, and with ipsative judgment analysis at .14-.30. The predictive validity of the GRE was questioned.

102a. Schallow, John R.; Hogan, Terrence P. APA Accreditation and Applications to a Clinical Psychological Program. Clinical Psychologist, 1975, 28(2), 11.

This study compared two groups of applicants to a clinical psychology program at the University of Manitoba. 155 students applied in the year before the program received accreditation from the American Psychological Association, and 142 students applied in the year after accreditation. The only significant change in the geographical distribution of applications was a reduction in the second group in the number of applicants from Manitoba. No significant change appeared in the quality of applicants, as measured by GPA and Graduate Record Examinations scores. Accreditation appeared to increase the number of applicants from universities of higher quality and to decrease applications from universities of lesser prestige. Limitations of the study design are pointed out.

103a. Shand, Jack. The Graduate Record Examinations Advanced Test in Psychology in Relation to Undergraduate Academic Standing. Journal of Psychology, 1970, 76(1), 85-90.

The results of this study indicated difficulties in the predictive validation of the Graduate Record Examinations (GRE) using existing procedures and prevalent criteria of success in graduate school. A method of concurrent validation (based on correlation of the GRE Advanced Test in Psychology with undergraduate psychology quality point average), which was used for each of five successive years (N is greater than 30 for each year), yielded consistently higher correlations (near .50) than those commonly reported in the literature for the correlation of either GRE verbal or quantitative scores or the GRE Advanced Test in Psychology scores with various criteria of success in graduate work in psychology.

104a. Sharon, Amiel T. English Proficiency, Verbal Aptitude, and Foreign Student Success in American Graduate Schools. Educational & Psychological Measurement, 1972, 32(2), 425-31.

Results of this study indicate that an English proficiency test such as Test of English as a Foreign Language may raise the validity of the GRE Aptitude Tests in predicting foreign students' graduate school GPA.

105a. Sharon, Amiel T. Test of English as a Foreign Language as a Moderator of Graduate Record Examinations Scores in the Prediction of Foreign Students' Grades in Graduate School. GRE Board Professional Report GREB No. 70-1P. Princeton, N.J.: Educational Testing Service, 1971. 20pp. ED 058 304.

Scores of foreign graduate students on the Graduate Record Examinations Aptitude Test and the Test of English as a Foreign Language (TOEFL) were combined through multiple and moderated regression to predict grade point average (GPA). It was hypothesized that TOEFL would moderate the relationship between the GRE scores and GPA. According to this hypothesis, students scoring high on TOEFL would be more predictable by GRE than those scoring low. The hypothesis was only partially supported by results. The results suggest that foreign students with low English verbal aptitude can succeed in American graduate schools. The limitations of GPA as a criterion of graduate school success for foreign students is discussed.

106a. Skinner, Earl E., Jr. A Follow-Up Study of Doctoral Graduates in Education: The University of Southern Mississippi 1962-1970. Ed.D. dissertation, Univ. of Southern Mississippi, 1971. 295 pp. (Order No. 72-9097.)

The problem of this study was to obtain, organize, and present data of doctoral graduates in the field of education in order to draw conclusions and make recommendations concerning the findings. The following were the major conclusions: (1) total scores attained by the graduates on the Aptitude sections of the Graduate Record Examinations and their scores on the Miller Analogies Test (MAT) did not appear to be good predictors of success in attaining doctorates. Most graduates disagreed to some

extent that requiring MAT scores for admittance to candidacy was realistic; (2) graduates were generally well pleased with their doctoral training, and large majorities felt that most aspects of their training contributed greatly to their professional advancement and other aspects of their lives; (3) most graduates appeared to escape undue financial hardship during their periods of residency; however, most were not full-time students throughout their doctoral programs. Family responsibilities did not deter graduates from pursuing doctorates; (4) most graduates were employed in colleges and universities where a majority of their working hours were spent in teaching. Most aspired to positions in these organizations; (5) a majority of graduates had no geographical mobility after completing their doctoral degree requirements and generally appeared to be satisfied in their present positions; (6) a majority of graduates realized substantial increases in their annual professional incomes after attaining doctorates. The median annual professional income expected for 1971 was \$15,875, which is commensurate with annual professional incomes of other doctoral graduates in this field; (7) a preponderance of graduates did not expect to use The University of Southern Mississippi's placement office services, consultant services, library services, and research facilities and services during 1971; (8) there appeared to be no advantage to one type of doctorate over the other.

107a. Soetrisno, Heru. Prediction of Academic Performance of the U.S. Navy Officer Students in Operations Research/Systems Analysis Curriculum at the Naval Postgraduate School. Monterey, Calif.: Naval Postgraduate School, 1975. 77pp. Available from the National Technical Information Service. (Order No. AD-A009-922).

A study of the U.S. Navy officer students who were registered in the Operations Research/System Analysis curriculum at the Naval Postgraduate School (NPS) in the spring of 1974 was conducted using biographical data, the Strong Vocational Interest Blank, and the Graduate Record Examinations to develop an equation predicting their academic performance. Several prediction equations were derived using a development sample and then cross-validated using a hold-out sample. The results were statistically significant. Four of the prediction equations derived were selected to be further analyzed to obtain regression coefficients using the Jackknife procedure. No significant differences were found between the results obtained using the Stepwise Regression procedure and the Jackknife procedure. It was concluded that data from the three instruments (the biographical questionnaire, the Strong Vocational Interest Blank, and the Graduate Record Examinations), as well as data from any combination of two or all three of them, provided higher potential for predicting academic performance than did prior academic performance. It is pointed out that the group that was studied was highly homogeneous; already accepted at NPS, all the officer students had a prior grade point average of 2.5 or above. Among appendixes are the biographical questionnaire, the Strong Vocational Interest Blank, and graduate education potential categories for classification.

108a. Sofge, Charles T. Prediction of Performance and Satisfaction of Aeronautical Engineering Students at the Naval Postgraduate School. Master's thesis, Naval Postgraduate School, 1974. 78pp. ED 109 541.

A primary objective of this research was the development of predictors of academic performance and satisfaction for aeronautical engineering students. Three basic types of data used to develop predictors were biographical (historical), academic aptitude (Graduate Record Examinations), and individual interest (Strong Vocational Interest Blank). Several successful predictors of performance were developed, but further research will be required to successfully predict student satisfaction.

109a. Stordahl, Kalmer E. Predictive Validity of the Graduate Record Aptitude Test. Marquette,: Northern Michigan Univ., Institutional Research Office, 1970. 5pp. ED 044 071.

The purpose of this study was to assess the validity of the Graduate Record Examinations Aptitude Test verbal ability (GRE-V) and quantitative ability (GRE-Q) scores and undergraduate grade point average (GPA) as predictors of graduate grade point average in the Master of Arts degree program at Northern Michigan University. The subjects were 120 students who had taken the GRE between 1967 and 1970 and had completed eight hours or more of graduate work. The findings indicated that the undergraduate GPA was the best single predictor of graduate academic performance. The addition of GRE scores to undergraduate GPA in an optimally weighted equation did not add significantly to the prediction of the graduate GPA, although the GRE-V was found to be significantly correlated with graduate GPA when used independently of undergraduate GPA.

110a. Thacker, Andrew J.; Williams, Robert E. The Relationship of the Graduate Record Examinations to Grade Point Average and Success in Graduate School. Educational & Psychological Measurement, 1974, 34(4), 939-944.

Because of the wide use of the Graduate Record Examinations (GRE) for selection and the general acceptance of its predictive ability, a review was made of recently published research articles concerning the predictive validity of the scores on the GRE relative to the criteria of grade point average and general success in graduate school. The data from the articles reviewed were reported, and the weight of the evidence suggests that this wide use of the GRE for selection must be questioned. These data also illustrated the need for additional predictive studies in this area since none of the results were found to be conclusive.

111a. Traw, L. Stephen. The Predictive Validity of Selection Criteria Used in the Doctoral Program of the College of Education at the University of Wyoming. Ph.D. dissertation, Univ. of Wyoming, 1972. 100 pp. (Order No. 72-32802.)

The purpose of this study was to determine whether the criteria used in the selection of doctoral candidates in the College of Education at the University of Wyoming were related to success in the doctoral program.

Completion of the program was used as the criterion of success. Data from 1961 through 1971 were abstracted. Students were classified into three groups: 270 graduates, 43 nongraduates, and 96 actives. Actives--students determined to be progressing toward completion of their programs--were not used in the study. Predictor variables included scores from the Miller Analogies Test, Comprehensive Education Test, Cooperative English Test, and the Graduate Record Examinations Aptitude and Advanced Education Tests. Other academic variables were grade point averages for the bachelor's, master's and post-master's work and faculty ratings. Background variables included age at admittance to candidacy, whether or not the bachelor's and master's degrees were earned at the University of Wyoming, and time lapse between award of the bachelor's degree and candidacy for the master's degree and between award of the master's degree and candidacy for the doctorate. Significant differences between the mean scores of the graduates and nongraduates were found on a number of predictor variables: age, post-master's grade point average, faculty ratings, the Graduate Record Examinations Advanced Education Test and quantitative ability scores, and the time lapse between award of the bachelor's degree and candidacy for the master's degree. These same factors had the highest correlation coefficients when the relationship of the predictor variables to the success criterion of graduated/not-graduated was analyzed. The GRE quantitative ability score achieved the strongest relationship with the criterion (-.28). The highest correlation of the other variable with the criterion was age, which had a correlation coefficient of .17. In an effort to determine which variables were most effective for the selection of successful candidates, the stepwise regression analysis did not include the GRE Aptitude Test.

112a. Valdez, Jude. A Performance-Centered Model for Generating Graduate Student Selection Criteria at the Departmental Level--An Exploratory Study. Ph.D. dissertation, Univ. of Texas at Austin, 1976. 21 pp. (Order No. 77-11601.)

The major purpose of this study was to develop and pilot test a performance-centered model for identifying a comprehensive set of graduate student selection criteria at the departmental level. Three graduate departments--Curriculum and Instruction, Educational Psychology, and Educational Administration--of the College of Education at the University of Texas at Austin served as the loci of the study. The model that was pilot tested was an adaptation and expansion of the critical-incident technique. Approximately 670 critical incidents--specific illustrations of most and least successful student performances--were collected from the faculty and students in the three participating departments. A taxonomy of 24 performance categories for sorting the incidents was then developed by a team of faculty and students. To test the fit between the incidents and the performance categories of the taxonomy, a second team sorted the incidents into the performance categories. Finally, the 24 categories were converted into rating scales with operationally defined poles. The resulting instrument was the Student Performance Rating Scale (SPRS), which was used by faculty in the three departments to rate a sample of currently enrolled students. Judging from the results, the

model that was employed represents a viable methodology for formulating a comprehensive set of admission criteria congruent with the needs of a particular department or group of departments. Results revealed that the four factors together account for 79 percent of what faculty members view as successful performance in Curriculum and Instruction, and 77 percent and 83 percent in Educational Psychology and Educational Administration, respectively. While academic performance clearly was identified as key to success in the three departments, there were some nonacademic performances that were significant as well (interpersonal relationships, stamina and drive, and leadership). The findings also strongly suggest that traditional selection methods based on entrance grade point averages and Graduate Record Examinations scores do not assess many of the skills necessary to succeed in the three departments. Recommendations for employing the results of the research in an admission program were made.

113a. Vecchio, Robert; Costin, Frank. Predicting Teacher Effectiveness from Graduate Admissions Predictors. American Educational Research Journal, 1977, 14(2), 169-170.

Student achievement in an introductory psychology course was found to correlate most strongly with the teaching assistant's Graduate Record Examinations (GRE) Advanced Psychology Test score and with the number of undergraduate psychology courses taken by the instructor. Student satisfaction with the instructor, however, was best predicted by the instructor's GRE verbal score.

114a. Wallace, Marc, J.; Schwab, Donald P. A Cross-Validated Comparison of Five Models Used to Predict Graduate Admissions Committee Decisions. Journal of Applied Psychology, 1976. 61(5), 559-563.

Weights derived from an admissions committee's assessment of 170 applicants to a graduate industrial relations program using five models (linear, multiplicative, dummy variable, unit weighting, and multiple hurdles) were cross-validated on 112 additional applicants. Predictions of all models were significantly related to the committee's admissions decisions in the cross-validation group. The accuracy of predictions was about the same for all models; however, except for GPA and Graduate Record Examinations scores, the other variables weighted varied somewhat from model to model. A substantial amount of the decision variance was unaccounted for by any model.

115a. Ward, Richard S.; And Others. Teaching Behavioral Science: An Experiment. Journal of Medical Education, 1970, 45(11), 893-900.

This article describes an experimental teaching program in the psychiatry department of a medical school. The program consists of a full curriculum year of behavioral sciences open to medical students prior to their clinical years. The program goals, underlying philosophy, program form, and curriculum are described. After four years of operation, 19 students have completed the program. Class rankings have generally improved

dramatically as have Graduate Record Examinations scores in sociology and psychology. Interviews with the students by experts, observations by faculty members, and critiques from the students themselves tend to support the effectiveness of the program.

116a. Ward, William C.; Frederiksen, Norman. A Study of Predictive Validity of the Tests of Scientific Thinking. GRE Board Professional Report GREB No. 74-6P. Princeton, N.J.: Educational Testing Service, 1977. 58pp. ED 166 239.

This study provides preliminary evidence as to the validity of measures derived from the Tests of Scientific Thinking (TST). The TST and the Graduate Record Examinations (GRE) tests were compared with regard to their relationships to interests, self-appraisals, and accomplishments of students during the first year of graduate work in psychology. Criterion variables were obtained from a questionnaire mailed to students near the end of the spring semester. Difficulties in data analysis were created both by the item-sampling character of the experimental test data and by a relatively small rate of return of questionnaires. It is possible to show, however, that the correlations do exhibit appreciable nonchance variance with regard to consistency across tests and across related questionnaire variables. The GRE tests were found to be more effective than the experimental instruments in predicting quality of the department attended, but the experimental tests were more effective in two other domains: (1) self-appraisals of knowledge of psychology and skills in psychological activities, and (2) professional accomplishments such as research, publication, teaching, and tutoring.

117a. Weaver, W. Timothy. Educators in Supply and Demand: Effects on Quality. April 1977. 113pp. ED 143 145.

In this report, the supply-demand imbalance in teacher education is described, and a theory of institutional response to the general imbalance problem is discussed. The theory postulates that as market demand for new graduates in a given field declines, the quality of the student body entering that field of study will also decline. The theory assumes the institutions adapt by selecting the best from a shrinking pool of talent but in so doing sacrifice absolute standards for relative standards. The applications, acceptances, registrations and SAT verbal scores and the motor scores of three schools of engineering are compared. Eleven programs of teacher preparation were examined. Entry-level test scores, applications, acceptances, and enrollments from 10 of the programs were compared with data from other academic divisions within the same institutions. In the cases examined, a decline in applications has led to an increase in the ratio of acceptances and lower mean SAT verbal and math scores among entering students as compared to other academic divisions and compared to general test score declines. An examination of Graduate Record Examinations on verbal and quantitative test scores by those who indicate a field of intended study shows a parallel pattern.

118a. Webb, Randall Joseph. A Study of the Effects of Anxiety and Attitudes upon Achievement in Doctoral Educational Statistics Courses. Ed.D. dissertation, Univ. of Southern Mississippi, 1971. 86 pp. (Order No. 72-9103.)

The problem of this study was to determine the relationship between certain attributes of doctoral students and academic achievement in two educational statistics courses at the University of Southern Mississippi. The sample for the study consisted of 87 doctoral students enrolled in two graduate educational statistics courses. The anxiety and attitudes measures were obtained at the beginning and end of both courses by administration of appropriate instruments to the students. The general aptitude variable was measured by students' GRE verbal and quantitative scores as well as the composite of the two. The best predictor was found to be student attitude toward the course ($r = .50$) followed by the composite GRE score. It was also found that the anxiety and attitude measures, taken as a composite, significantly predicted first-course achievement. No significant changes in anxiety and attitudes occurred over the two-course sequence. In summary, both the intellectual and nonintellectual variables included in the study were found to significantly predict achievement in the first course, while these variables proved ineffective in predicting second-course achievement. Students' anxiety and attitudes appeared to be relatively stable throughout the two courses, possibly indicating the importance of general ability in influencing second-course achievement.

119a. Wiekkel, William J.; Loesch, Larry C. Cognitive Correlates of Counselor Trainees' Needs Awareness. Canadian Counselor, 1977, 11(3), 128-130.

The purpose of this study was to examine relationships between differences in counselor trainees' perceived and measured needs levels and Graduate Record Examinations (GRE) scores and grade point averages (GPA). GRE scores were generally inversely related to differences in measured and perceived needs levels--that is, higher GRE scores were associated with smaller differences.

120a. Wiggins, Nancy; And Others. Prediction of First-Year Graduate Success in Psychology: Peer Ratings. Journal of Educational Research, 1969, 63(2), 81-85.

This study involved comparing a variety of measures used for predicting first-year GPA in graduate school in psychology. The predictors included standard ability measures--for example, the Graduate Record Examinations--biographical characteristics, peer ratings on intellectual and personal variables, and scales from the Opinion, Attitude, and Interest Survey. The samples involved 46 first-year psychology students in 1965 and 58 students in 1966. Results indicate that among all predictors only the peer ratings demonstrated predictive validity of first-year grades.

121a. Willingham, Warren W. Predicting Success in Graduate Education. Princeton, N.J.: Educational Testing Service, 1973. 23pp. ED 079 365.

The available objective evidence suggests that the accuracy of predicting which students will succeed in a particular graduate school is often no better than modest, especially if such predictions are based only upon a

test or a grade record. Taken together, these two types of predictors do a reasonably good job, considering the restricted range of abilities measured. The best way to improve selection of graduate students will be to develop improved criteria of success. This is no small job for graduate faculties, but it carries the promise of more effective utilization of talent and greater assurance of equity in admitting students to advanced levels of training and according them the privilege associated with such programs.

122a. Willingham, Warren W. Validity and the Graduate Record Examinations Program. Princeton, N.J.: Educational Testing Service, 1976. 36pp. ED 163 082.

The main purpose of this paper is to facilitate discussion of important issues concerning GRE validity and to work toward a framework that the GRE Board Research Committee will find useful in assigning priorities and initiating projects. The background, scope, and meaning of the concept of validity as it relates to the GRE are addressed in order to focus on the six proposed objectives for research on validity: (1) to encourage and facilitate institutional validity studies; (2) to deal effectively with methodological issues concerning validity that require the GRE program's initiative; (3) to develop improved criteria of success in graduate study; (4) to improve population validity and enhance understanding of it; (5) to improve institutional use of summary program data; and (6) to systemically insure the validity of revised or new measures resulting from program renewal. The six objectives are defined, and the status of research relevant to each of the objectives is presented in terms of reports available and current projects.

123a. Wisneski, Carl Anthony. A Contribution Toward the Professionalization of the Media Field Through the Development of a Media Doctoral Program Model. Ed.D. dissertation, Temple University, 1974, (Order No. 75-28150.)

The purpose of this study was to develop a doctoral-level program model for preparation for the media field. The elements of the model include: (1) all prerequisites necessary for admission to the media doctoral program, (2) the general institutional requirements for satisfactory completion of the program, and (3) the course work and/or experiences that are deemed necessary for the doctoral degree in educational media. A mailed questionnaire was utilized to gather the data that was used to determine the elements included in the media doctoral program model. The media doctoral program model was developed through analysis and consolidation of the tabulated data from the questionnaire. The criteria used to determine the inclusion of a requirement in the model was a positive reaction to that requirement by a majority of the respondents. The following admission requirements (minimum) were stipulated: (1) undergraduate grade point average of 2.8 (A=4.0); (2) graduate grade point average of 3.1, (3) master's degree or 30 hours of graduate credit, (4) two years teaching experience, (5) a personal interview, and (6) Graduate Record Examinations combined score of 1060. General institutional requirements (minimum) were: (1) 85 hours of graduate credit

(including the master's), (2) 38 hours of graduate credit in the media field, (3) grade point average of 3.1, (4) a dissertation, (5) a comprehensive written examination in the major field, (6) an internship project, and (7) a field-experience project. The course/experience requirements (minimum) are reflected in the requirements already stipulated under general institutional requirements. The total of 85 graduate credit hours prescribed for the media doctoral program would include the 30 graduate hours for the master's degree (or equivalent) and therefore require the candidate to add 55 graduate credit hours during the media doctoral program. If each course/experience represented the usual three semester hours of credit, a minimum of 19 courses/experiences would be required to fulfill the program requirement.

124a. Woodard, Dudley Blakeslee, Jr. Predicting Success in Graduate School from Biographical Data. Ph.D. dissertation, Ohio Univ., 1969. 294 pp. (Order No. 70-4757.)

The main purpose of this study was to determine the extent to which an objectively scored biographical inventory provides an effective means of predicting in-school success for Ohio University graduate students enrolled in the Department of Counseling, Guidance, and Student Personnel and the Department of Psychology. A 300-item multiple-choice biographical inventory (BI) was administered in the fall and winter quarters to graduate students in both departments. Two different forms of the inventory were used in the test-retest. One hundred and seventy-one graduate students completed both forms. This return represented 65 percent of the graduate students enrolled in both departments. The inventories were scored on three empirically derived keys: (1) creativity, (2) female grade point average, and (3) male grade point average. Other predictor variables used in the study were undergraduate grade point average, the Graduate Record Examinations (GRE) verbal and quantitative Aptitude Tests, and the GRE Advanced Education and Psychology Tests. The criterion measures used in the study were graduate grade point average and faculty ratings obtained on a semantic differential rating scale designed to assess differing dimensions of professional competence in the student's major area of concentration. Of the seven predictors, three were found to account either singly or in combination for most of the multiple correlation coefficient variance in 80 percent of the cases. Of the three, the best predictor was the BI Form-Beta Creativity Key, and the third best predictor was undergraduate grade point average. However, undergraduate grade point average was negatively related to faculty ratings. The best combination of predictors was the Advanced Test of the GRE and the BI Creativity Key. The verbal and quantitative Aptitude Tests of the GRE and the male and female BI grade point average keys were found, in most cases, to be ineffective predictors across all criterion measures for the total sample and subgroups. The criterion measures were predicted more successfully for the female, post-master's, and second-year or more advanced subgroup than for any other subgroup. The best predicted criterion measures were Professional Interpersonal Competence, Research Competence, Diagnostic Competence, and Counseling/Therapeutic Competency.

125a. Yuker, Harold E. Effects of Repeating the Graduate Record Examinations. Hempstead, N.Y.: Center for the Study of Higher Education, Hofstra Univ., 1968. 4pp. ED 027 818.

A study of all Graduate Record Examinations (GRE) scores reported to Hofstra University between September 1963 and February 1968 revealed that 27 persons had repeated the verbal part of the GRE. Twenty-seven retook the quantitative part, and 39 retook the Advanced Test. The interval between test and retest ranged from 2 to 40 months. The GRE scores of students who took the examination more than once were compared, and efforts were made to relate changes in the scores to the time that elapsed before the examination was taken again. The data revealed that a higher score was obtained by 59 percent of those retaking the verbal portion, 70 percent of those retaking the quantitative section, and 90 percent of those repeating the Advanced Test. Although the results are tentative because the sample was small, it is concluded that the effect of retaking the GRE varies, depending on the section of the test taken and when it is taken. The average increase in scores on the verbal section was 21 points, and there was little relationship between the increase and the time period between test and retest. The greatest increase--an average of 30 points--was obtained on the quantitative test when it was retaken after one or two months. The average increase on Advanced Test scores was 64 points. Increases were greatest when there was a long time lapse between first and second administrations.

Reviews and Commentaries on the GRE

- 1b. Bennett, George K. Response to Robert Williams. Counseling Psychologist, 1970, 2(2), 88-89.

The author of this article presents an argument against the charge lodged by R. L. Williams that conventional psychological tests--Stanford Binet, Wechsler, Scholastic Aptitude Test, Stanford Achievement, Iowa Test of Basic Skills, Graduate Record Examinations, and Miller Analogies Test--"are unfair and improperly classify Black children." Bennett offers the following defense: (1) the educational deficit suffered by the culturally deprived is revealed by these tests, (2) the tests measure the ability to perform tasks or display acquired knowledge, but do not measure intelligence, (3) no test is designed to discriminate by sex, religion, or race, and (4) tests attempt to elicit the best performance of the respondent. Among the materials provided by testers to reduce anxiety are the following: a tape-recorded familiarization program, "culture-laden" verbal and numerical measures, and "CAST" equipment (three tape cartridges containing well-paced, clearly given test instructions.)

- 2b. Burns, R. L. GRE and ETS. American Psychologist, 1972, 27(3), 238.

The purpose of this article is to clarify the GRE Board and ETS position concerning the purposes of the GRE--in particular, purposes related to concerns raised by Marston (see 10b). Focusing on validity-related research proposed by Marston, the author argues that the criterion he suggested is not appropriate.

- 3b. Cunnigen, Donald. Graduates of Black Colleges in a White Graduate School. Integrated Education, 1978, 16(2), 30-31.

In this article, the scarcity of graduates from black colleges in white graduate programs is discussed. The author examines the effect of GRE scores, university policies, and student motivation on the enrollment of black students.

- 4b. Goodrich, Jonathan N. American Standardized Tests: Pseudo-Indicators of Ability? Educational Technology, 1975, 15(12), 23-25.

This article questions the widespread use and acceptance of standardized graduate and professional school admission tests such as the Admission Test for Graduate Study in Business and the Graduate Record Examinations. These tests are given precedence as screening devices by colleges, universities, and other organizations over what the author asserts are more reliable indicators of a person's ability and aptitude such as academic record, strength of recommendations, communication skills, and interpersonal competence and motivation. Several shortcomings of the tests are enumerated. These include the tests' inability to measure intelligence or the capacity to learn. They assess only narrow areas of knowledge at merely one point in time, and they are culturally biased toward white middle-class Americans. Many of the standardized tests have little relationship to skills required for success in life. The unfortunate corollary of the shortcomings of standardized tests is that people develop

premature prejudices about other people's abilities based on these test scores, and these prejudices often lead to self-fulfilling prophecies.

5b. Hudson, Randolph. The Graduate Record Examinations: A Minority Statement and a Prediction. New York: Association of Departments of English, 1969. 3pp. ED 026 409.

In this report, arguments are set forth to encourage continued use of the Graduate Record Examinations (GRE) as supplementary information rather than as an exclusive criterion for selecting graduate candidates in English. The author predicts that the GRE will be increasingly used and will increasingly come to define and control undergraduate and graduate instruction in English.

6b. Lamson, Merle E. GRE Under Fire Again. Journal of Education for Librarianship, 1972, 12(3), 175-177.

The validity of using Graduate Record Examinations scores either for admission to or graduation from the Brigham Young University Library School is questioned.

7b. Love, W. D. Reexamination of GRE Scores. American Psychologist, 1972, 27(3), 239.

The author presents a brief note commenting upon the Marston article (see 9b) related to use of GRE scores in the selection of prospective graduate students.

8b. Lynn, Jerry R. Graduate Program Admissions Criteria Need Thorough Study. Journalism Educator, 1978, 33(1), 20-22.

A follow-up to a plea by Scotton (see 13b), this article points out that most studies of GRE used as an admissions device do not support its use. The author argues that additional dimensions of applicants, beyond GPA and GRE scores, need to be explored: quality of undergraduate institution attended, demographic profiles, personality assessment, and the like. The author describes studies touching on these variables and recommends that admissions procedures in journalism and related fields be modified.

9b. Marston, Albert R. It Is Time to Reconsider the Graduate Record Examinations. American Psychologist, 1971, 26(7), 653-655.

This article reviews the generally low correlations of Graduate Record Examinations general Aptitude scores with various criteria of performance in graduate school. A retrospective study of Ph.D.s from one university is also reported, relating GRE scores to postdoctoral publication records. Correlations were statistically zero (.02-.24), computed in several ways for both clinical and nonclinical graduates. A national review of the use of the GRE for screening is suggested in light of its apparent effectiveness as an obstacle to the admission of minority students.

10b. Marston, A.R. Rejoinder to Weitzman's Comments on "It Is Time to Reconsider the GRE." American Psychologist, 1972, 27(9), 900.

This article continues the interchange that was initiated by Marston (see 9b) related to the appropriateness of criteria used to validate the GRE. (Also, see Weitzman, 15b.)

11b. Morgan, Margaret K. Research Needed: To Identify Criteria for Selecting Health Care Leadership Personnel. Adult Education, 1972, 24(2), 143-148.

This article criticizes the use of GPA and standardized test scores (for example, the Graduate Record Examinations scores) as criteria for admission to graduate schools in the health professions. The author cites previous studies that indicate that (1) there is little or no relationship between college grades and measures of adult accomplishment, (2) screening instruments measure what the individual has learned rather than his potential or his creativity, and (3) persons in certain helping professions tend not to do well on standardized tests. Research strategies for developing predictor criteria of success in the health professions are suggested.

12b. Robbins, Jane. Celebrating Diversity: A Report on and Plea for Multi-Cultural Graduate Library Education. Chicago, Illinois: Association of American Library Schools, 1978. 36pp. ED 153 624.

This paper discusses to what extent during the past eight to ten years the student bodies of accredited library schools have changed from the predominantly white demographic characteristic. Its principal focus is upon the financial, educational, psychosocial, and cultural barriers in higher education for Black, Mexican, Native- and Asian-American minority students. It also briefly discusses concerns specifically related to Canadian library schools. Even though a number of schools have undertaken effective recruitment programs, and there are more nonwhite librarians than in the past, it appears as though the progress made to date has been the result of one-time efforts supported by dollars outside the regular budget; at present, there is little indication that racial diversity is given high priority in graduate library education. The major problems that must be overcome to increase minority enrollment include: (1) the profession's obsession with high education standards, such as GRE scores and grade point averages, as the primary prerequisites for admission to graduate school; (2) ill-defined and unarticulated recruitment and admission policies with respect to minority enrollments; and (3) curriculum content that currently does not emphasize intercultural communication and minority-group concerns. A selected bibliography on minority higher education and librarianship is appended.

13b. Scotton, James F. Predicting Success of Students Entering Master's Programs. Journalism Educator, April 1977, 32, 55-57.

This article reviews the substantial body of literature and research on admission criteria, including GRE scores, of which journalism educators should be aware.

14b. Wallach, Michael A. Tests Tell Us Little About Talent. American Scientist, 1976, 64(1), 57-63.

It is generally agreed that admission to colleges and universities should be based on merit, which is typically measured by certain test scores or academic grades. However, test scores and grades are not inherently measures of merit, but are only assumed to provide an indication of the applicant's competence. A review of a number of studies of the Scholastic Aptitude Test and the Graduate Record Examinations reveals their ability to predict academic grades, but shows that they have little or no relationship to occupational or professional success. It is concluded that test scores should be used to eliminate college candidates who score too low, and that some kind of life achievement measure should be used to select candidates from those above the cut-off scores.

15b. Weitzman, R. A. It Is Time to Re-Reconsider GRE--Reply to Marston. American Psychologist, 1972, 27(3), 236.

In this brief paper, the author points out some inconsistencies in Marston's (see 9b) analysis of GRE data with respect to a criterion problem and a serious restriction in the range of ability. The author offers some alternative reasons for keeping the GRE Aptitude and Advanced Test in Psychology as part of the selection process at the University of Southern California. (See also, Marston, 9b, and Burns, 2b.)

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